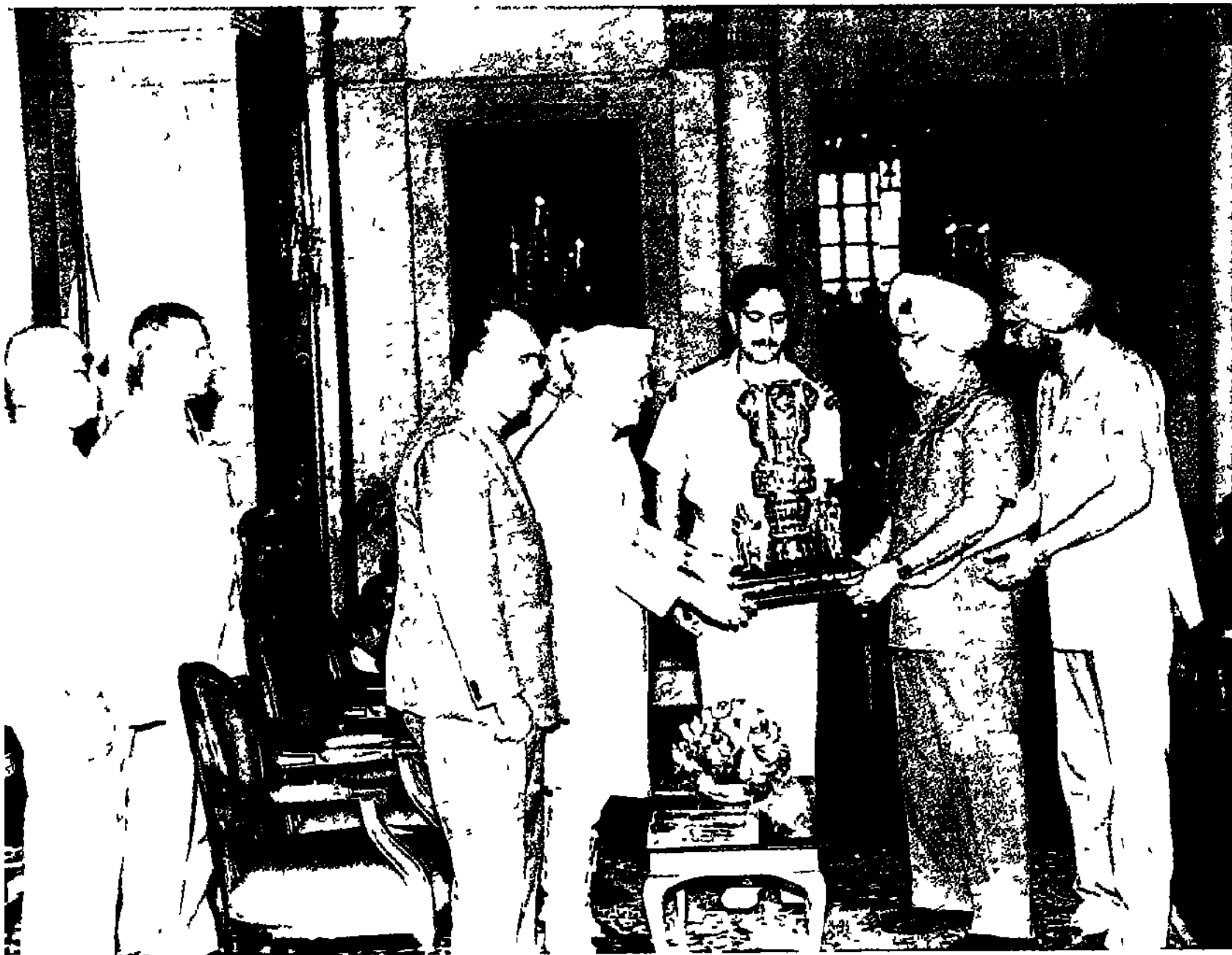


University News

MONDAY, MAY 17, 1993

Rs. 5.00

Abul Kalam Azad Trophy



Hon'ble Dr Shankar Dayal Sharma, President of India, awarding the Maulana Abul Kalam Azad Trophy to Prof G S Randhawa, Vice-Chancellor, Guru Nanak Dev University On his right is Mr Arjun Singh, Union Minister for Human Resource Development

VISVA-BHARATI

Admission Notice for academic session 1993-94

Vidya-Bhavana (Institute of Humanities & Social Sciences)

- 1 Two-year M A course in Bengali, English, Sanskrit, Hindi, Oriya, Indo-Tibetan, Chinese, Philosophy, Comparative Religion, Economics, History, Ancient Indian History Culture & Archaeology, Geography and Mathematics
- 2 Three-year B.A (Honours) courses in Bengali, English, Sanskrit, Hindi, Oriya, Philosophy, Comparative Religion, Economics, History, Ancient Indian History Culture & Archaeology, Geography and Mathematics
- 3 Four-year B.A. (Honours) course in Chinese

Siksha-Bhavana (Institute of Science)

- 1 Two-year M Sc courses in Physics, Chemistry, Mathematics, Zoology (Life Science) and Botany (Life Science)
- 2 Three-year B Sc (Honours) courses in Physics, Chemistry, Mathematics, Zoology (Life Science) and Botany (Life Science)

Kala-Bhavana (Institute of Fine Art & Craft)

- 1 Two-year M Fine courses in Painting, Sculpture, Graphic Art (Print Making), History of Art and Design (Textile & Ceramics)
- 2 Two-year Post-Diploma Courses in Painting, Sculpture, Graphic Art (Print Making) and Design (Textile and Ceramics)
- 3 Five-year B Fine (Honours) courses in Painting, Sculpture, Graphic Art (Print Making), Design and History of Art
- 4 Five-year Diploma courses in Painting, Sculpture, Graphic Art and Design
- 5 Two-year Certificate course in Design

Sangit-Bhavana (Institute of Music and Dance)

- 1 Two-year M Mus courses in Rabindra-Sangit, Hindusthani Classical Music (Vocal, Instrumental – Sitar and Esraj), Katha-Kali, Manipuri Dances and Tabla
- 2 Four-year B Mus courses with any two of the following subjects (specialisation in any one subject only at the Part III level) - Rabindra-Sangit, Hindusthani Classical Vocal Music, Sitar, Esraj, Tabla, Pakhwaj, Kathakali Dance, Manipuri Dance and Drama
- 3 Two-year Special Degree Courses in subjects at Serial No 2 above
- 4 Four-year Diploma course with any two of the subjects at Serial No 2 above (excepting Drama)
- 5 Four-year Senior Certificate Course in subjects at Serial No 2 above (excepting Drama)

Palli Siksha-Bhavana (Institute of Agriculture)

- 1 Two-year M Sc (Ag) courses in Agronomy, Plant Protection and Agncultural Extension
- 2 Four-year B Sc (Ag) (Honours) course in Agriculture

Palli Samanthana Vibhaga (Institute of Rural Reconstruction)

- 1 Two-year M A Course in Anthropology
- 2 Two-year M A Course in Rural Development
- 3 Two-year M S W Course in Social Work
- 4 Three-year B S W (Honours) course in Social Work
- 5 Three-year Diploma Courses in Crafts in the subjects –
 - (i) Diploma in Wood Work
 - (ii) Diploma in Handloom Weaving

Uttar Siksha Sadana (Higher Secondary Section)

Two-year Pre-Degree (10 + 2) course in Arts and Science stream

Tagore Studies – A Compulsory Course for all undergraduate students.

Admission of Scheduled Castes/Scheduled Tribes and Physically Handicapped candidates will be governed as per rules of the Govern-

ment of India T.A. as per rules will be granted to candidates called for admission test for Postgraduate courses. SC/ST candidates will be paid T.A. as per rules stipulated for them

Detailed eligibility criteria for admission to different courses are displayed on the Notice Board of respective Institutes. Prospective candidates may however, enquire from the Principal (Adhyaksha) of the Institute concerned about the minimum marks required for admission to a course. Handout bearing eligibility conditions for admission and details of course curricula and prescribed application form for admission may be obtained from the respective Adhyakshas (Principals) of the Institutes on application on plain paper which should be accompanied by a Crossed Indian Postal Order for Rs 5/- issued in favour of the "Accounts Officer, Visva-Bharati" and payable at the Santiniketan Post Office and also a self-addressed envelope (23cm x 10cm) affixed with Postage Stamps worth Rs. 3/- only. Handout and application form may also be obtained personally from the Office of the Institute concerned on production of a Cash Coupon for Rs 5/- only to be procured from the Accounts Officer, Visva-Bharati at Santiniketan or from the Assistant Accounts Officer Visva-Bharati at Santiniketan. Application on prescribed form, completed in all respect and supported by attested copies of required marksheets, certificates, documents etc., should reach the Adhyaksha (Principal) of the Institute concerned within the stipulated date. Candidates willing to apply for more than one course/stream should apply separately. Incomplete applications are liable to be rejected. Rights of cancellation or selection/admission lie with the Admission Committee of the Institute concerned. The University reserves the right to limit the number of eligible applicants to be called for admission test. Admission of foreign nationals are governed by rules of the Government of India subject to availability of hostel seats and eligibility norms for the course/subject concerned. Last date for receipt of application on prescribed forms

- 1) All courses of Kala-Bhavana . June 15, 1993
- 2) All courses at Sangit-Bhavana/ M A /M Sc /M Sc (Ag.)/M S W , M A (Anthrop)/M.A. (R.D) July 2, 1993
- 3) B A (Hons)/B Sc (Hons)/B.Sc (Ag.) Hons/B.S.W (Hons)/ Diploma in Crafts Tuesday July 20, 1993 or 21st day from the date of publication of results of the Pre-Degree Exam of Visva-Bharati and Higher Secondary (+2) Examination of the West Bengal Council of Higher Education of 1993, whichever is later
- 4) Pre-Degree Course July 2, 1993 or 21st day from the date of publication of results of Madhyamik or equivalent Examinations

N.B. Visva-Bharati remains closed on Tuesday afternoon and Wednesday (Weekly holiday)

Santiniketan
26 April, 1993

REGISTRAR

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IN THIS ISSUE

The Supreme Court Judgement on Capitation Fee	1
Environmental Conservation for Sustainable Development	5
Research at Manipur University	9
Curriculum of Academic Staff Colleges	19
Convocation	
School of Planning and Architecture, New Delhi	21
Campus News	
National Institute for Training and Research in Higher Education	24
New Plan for PG Medical Exams	25
Part-time Courses at Calicut Varsity	26
Haryana to Boost Technical Education	27
Sports News	
Abul Kalam Azad Trophy	27
Agriculture	
Socio-Economic Status of Rural Women	27
News from UGC	
Countrywide Classroom Programme	28
News from Abroad	
International Conference on Distance Education	29
Theses of the Month	30
Additions to AIU Library	32
Education News Index	33
Classified Advertisements	38

Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

The Supreme Court Judgement on Capitation Fee

L.N. Mittal*

On 4th February 1993, the Supreme Court laid down certain norms with regard to admission in private Medical & Engineering Colleges of Higher Education.

Reviewing the judgement in Miss Mohini Jain vs State of Karnataka & Ors, the five judge bench asked itself three questions :

1. Whether the Constitution of India guarantees a fundamental right to education to its citizens?
2. Whether a citizen of India has the fundamental right to establish and run an educational institution under Article 19(1)(g) or any other provision in the constitution?
3. Whether the grant of permission to establish and the grant of affiliation by a university imposes an obligation upon an educational institution to act fairly in the matter of admission of the Students?

In Miss Mohini Jain's case the court has held on a consideration of Articles 21, 38, 39(a) and (f), 41 and 45 of the Constitution that .

- (a) the framers of the Constitution made it obligatory for the State to provide education to all its citizens;
- (b) the objectives set forth in the preamble to the Constitution cannot be achieved unless education is provided to the citizens of the country;
- (c) the preamble also assures dignity of the individual. Without education dignity of the individual cannot be assured;
- (d) parts III and IV of the Constitution are supplementary to each other. Unless the 'right to education' mentioned in Article 41 is made a reality the fundamental rights in Part-III will remain beyond the reach of the illiterate majority;
- (e) the State is under a constitutional mandate to provide educational institutions at all levels for the benefits of citizens;
- (f) capitation fee is nothing but a consideration for admission; and
- (g) every citizen has a right to education under the Constitution. Charging capitation fee in consideration of admission to educational institutions, is a patent denial of a citizen's right to education under the Constitution.

The Bench also held that 'the state action in permitting capitation fee to be charged by state-recognised educational institutions is wholly arbitrary and as such violative of Article 14 of the Constitution ----- the capitation fee brings to a fore a clear class bias'.

The Bench has also held that having regard to the scheme of the Act, charging of Rs. 60,000/- for admission is nothing but a capitation fee.

*Principal, S.D. College, Muzaffarnagar.

Although in Mohini Jain's case the Bench had struck down the capitation fee and allowed her writ petition to that extent, the court was not inclined to grant any relief regarding admission to the petitioner. The judgement was operative prospectively.

In the present case which was considered by the five-judge constitution-bench headed by Chief Justice Mr. L.M. Sharma and including brother judges Mr. Justice B.P. Jeavan Reddy, Mr. Justice S.R. Pandian, Mr. Justice S. Mohan and Mr. Justice S.P. Bharucha, two-member bench decision in the Mohini Jain case was reviewed.

Mr Justice S. Ratnavel Pandian and Mr. Justice B P. Jeevan Reddy while agreeing with the Mohini Jain's decision insofar as it declared that 'the right to education flows directly from right to life', raised the question as to what would be the content of this right? How much and what level of education would be necessary to make life meaningful? Does it mean that every citizen of this country could call upon the state to provide him education of his choice? In other words, whether the citizens of this country could demand that the state provide adequate number of medical engineering and other educational institutions to satisfy all their educational needs? While the Mohini Jain's decision would seem to say 'yes' to all these questions, the majority judges in the present case did not agree with such a broad proposition. They decided that 'right to education' understood in the context of Articles 45 and 41 means .

- (a) every child/citizen of this country has a right to free education until he completes the age of fourteen years, and
- (b) after a child/citizen completes 14 years, his right to education is circumscribed by the limits of the economic capacity of the state and its development.

Mr. Justice Sharma and Mr. Justice S.P. Bharucha in their separate judgement had said that the question whether the right to primary education, as mentioned in Article 45 of the Constitution of India is a Fundamental Right under Article 21 or right to medical engineering or other professional degree, did not arise in Mohini Jain's case and no finding or observation on that question was called for. It was contended before them that since a positive finding on that question was recorded in Mohini Jain's case it becomes necessary to consider its correctness on merits. However the two judges decided not to express any opinion upon this question keeping in view the well established principle of not proceeding to decide any question which was not necessary to be decided in that case. In their view if it becomes necessary to decide this question in any subsequent case

having regard to its impact inter-alia on the country's financial capacity, the question might be referred to a larger bench for decision. However, they stated that there is no fundamental right to education for a professional degree that flows from Article 21.

In a separate judgement Mr Justice S. Mohan opined that he was in agreement with the conclusions of Justice B.P. Jeevan Reddy but recorded his own reasonings. He observed that higher education calls heavily on national economic resources. The right to it must necessarily be limited in any given country by its economic and social circumstances. The state's obligation to provide it is, therefore, not absolute and immediate but relative and progressive.

Mr. Justice Reddy dealt with questions No 2 and 3 (framed earlier) together. The counsel for the petitioners argued that the state had no monopoly in the matter of imparting education and every citizen had the fundamental right to establish an educational institution under Article 19(i)(g) of the Constitution even with a profit motive i.e., as a business venture, or if it is held for any reason that a person has no right to establish an educational institution as a business venture, he has atleast the right to establish a self-financing educational institution which could be described as an institution providing cost-based education. This counsel further argued that Mohini Jain's case was not right in saying that charging of any amount, but whatever name it was called, over and above the fee charged by the Government in its own colleges, might be described as capitation fee because it was simply not possible for the private educational institutions to survive if they were compelled to charge only that fee as was charged by Government institutions, considering the high cost of educating an engineering or a medical graduate.

Mr. Justice Reddy did not wish to express any opinion on the question whether the right to establish an educational institution could be said to be carrying on any 'occupation' within the meaning of Article 19(i)(g). However their opinion was certain that such activity of establishing an educational institution could neither be a trade or business nor could it be a profession within the meaning of the above Article. According to them, trade for business normally constitutes an activity carried on with a profit motive but education had never been commerce in this country and making it one was opposed to ethos, tradition and sensibilities of this nation.

Mr Justice S. Mohan also opined that the logical corollary of holding that it is a fundamental right to establish an educational institution was available under Article 19(i)(g) would lead to the right to establish a University also. If there was no fundamental right to

establish a University a fortiori a fundamental right to establish an educational institution was also not available. By implication also a fundamental right of the nature and character conferred under Article 30 could not be read into Article 19(i)(g). The conferment of such a right on the minorities in a positive way under Article 30 negates the assumption of a fundamental right in this behalf in every citizen of this country. Mr Justice Mohan observed that establishment of an educational institution could not be termed as 'business', nor could that be called trade since no trading activities carried on. Equally it was not a profession. It was one thing to say that teaching is a profession but it was a totally different thing to urge that establishment of an educational institution would be profession. It might perhaps fall under the category of occupation provided no recognition is sought from the state or affiliation from the university was asked on the basis that it was a fundamental right.

The Union of India, in this affidavit in this case, presented the state of affairs in the sphere of primary (I to V) and upper primary (VI to VIII) education in India. After setting out the particulars of number of schools and enrolment therein, it is stated in para 3 of the said affidavit that 'this increase provided Indian Education system with one of the largest system in the World providing accessibility within 1 Km walking distance of primary schools to 8.26 lakhs habitations containing about 94% of the country's population'. Education is the second highest sector of budgeted expenditure after the defence. A little more than three percent of the gross national product is spent on education. However in spite of the fact that educational expenditure continued to be the highest item of expenditure next only to Defence, the resource gap for educational needs is one of the major problems. Most of the current expenditure is only in the form of salary payment. It hardly needs to be stated that additional capital expenditure would greatly augment teacher productivity because in the absence of expenditure on other heads, even the utilization of staff remains low. Therefore, the Union of India took the stand that the Central Govt. did not have the resources to undertake any additional financial responsibility for medical or technical education. Taking the case of medical education, the total plan outlay for the health sector was 3.2 percent and medical education got a prorata share after apportionment of priorities of primary health, hospital services, etc. It has, therefore, been the policy of the Central Govt. to involve private and voluntary efforts in the sector of education in conformity with accepted norms and goals.

The NPE also envisaged Non-Government and voluntary efforts in education subject to proper management so that education does not get commercialised.

As it was argued that no educational institution except an University can award degrees and as the private educational institutions supplement the efforts of the state in educating people, what applies to the main activity applies to supplemental activity. The state could not claim immunity from the obligations arising from Articles 14 and 15 and also it could not confer such immunity upon its affiliates.

Therefore, to eliminate discretion in the management altogether in the matter of admissions to such professional private institutions, a scheme was evolved by the supreme court with the help of the counsel appearing before them and keeping in view the positive features of the several central and state enactments referred to in this case to regulate the admission process and the fee that could be charged by them, and to bar them from collecting anything other than the permitted fees, which was what 'capitation fees' meant. However it was made clear that charging the permitted fees by the private educational institutions which would be higher than the fees charged in similar Govt. Institutions by itself could not be characterised as 'capitation fees'.

The scheme is as follows which would be operative from 1993-94 :

- (1) There shall be no quota reserved for the management or for any family, caste or community which may have established such college.
- (2) A professional college shall be permitted to be established and/or administered only by a society or a public trust, but no individual will be permitted to establish or administer a professional college.
- (3) The students will be selected for admission on the basis of merit determined through a common entrance test in each state or in the absence of an entrance test by such criteria as may be determined by the competent authority.
- (4) At least 50% of the seats called 'free seats' in every professional college shall be filled by the nominees of the Government or University. These students will be selected on the basis of merit determined on the basis of common entrance test.
- (5) The remaining 50% seats called 'payment seats' shall be filled by those candidates who are prepared to pay the fee prescribed by the competent authority. The allotment of students against these seats shall also be done on the basis of inter-se merit determined by the same common entrance test.
- (6) The management of a professional college shall not be entitled to impose or prescribe any other and further eligibility criteria or condition for admission either to free seats or payment seats.
- (7) There will be reservation of seats for constitutionally permissible classes with the approval of the affiliating University. The rule of merit shall be followed even in such reserved categories.

- (8) The number of seats available in each professional college shall be fixed by the appropriate authority.
- (9) No professional college shall increase its strength except under the permission or authority granted by the appropriate authority.
- (10) All the applications for admission to various professional colleges in a state (both private and govt.) shall be invited by a single competent authority and no professional college shall call for application for admission separately.
- (11) Every state Govt. shall forthwith constitute a committee consisting of a Vice-Chancellor, the Secretary of Education and the Director of Medical/Technical Education, to fix the ceiling on the fees chargeable on 'payment seats' by a professional college or class of professional colleges.
- (12) Each professional college shall intimate the competent authority, the State Govt. and the concerned University in advance, the fees chargeable for the entire course commencing that academic year. The fees so chargeable shall be subject to the ceiling prescribed by the competent authority.
- (13) The committee suggested above shall fix the fees, after giving proper hearing to the college management once every three years or at such longer intervals, as it may think appropriate.
- (14) After the 'free seats' in professional colleges are filled, at least 10 days time will be given to the candidates to opt to be admitted against the 'payment seats'.
- (15) It is suggested that the Central Govt. and its autonomous bodies like the UGC, BMC, AICTE and other such bodies should broadly evolve a uniform criteria to fix the tuition fee. Till this is done, the fees fixed by the Committee will be operative.
- (16) The result of the entrance test, if any, should be published in at least two leading newspapers one in English and one in the regional language.
- (17) The candidates against 'payment seats' shall be allotted to different professional colleges on the basis of merit-cum-choice.
- (18) The competent authority shall issue a brochure, on payment of appropriate charges, along with the application form for admission, giving full particular of the courses, the number of seats available, the names of the colleges, their location and also the fees chargeable by each professional charge. This brochure will also specify the minimum eligibility conditions, the methods of admission (whether by entrance test or otherwise) and other relevant particulars.
- (19) The scheme shall be operative from the session on 1993-94.

Thus, the judgement is a land mark in the sense that it will now put a full stop to teaching shops making education a commodity. As a matter of fact, the Apex Court has succeeded where the intelligencia has failed.



UNIVERSITY OF DELHI

Ref. Etab./IV/Advt./136

Dated : 10.5.1993

1. **Reference : Advertisement No.135/93**

Corrigendum .

Under Special/Desirable qualification for MUSIC DEPARTMENT at Serial No.11 add Lecturer (1) Karnatak Music

2. **Reference : Advertisement No.129/91**

Applications, on the prescribed form are invited for the post of University Engineer.

The applications must reach the Registrar, University of Delhi latest by June 11, 1993. Persons who have already applied in response to the Advertisement Nos.129/91 and 135/93 for the above posts need not apply again. They may however supply additional information if any.

The details regarding prescribed qualifications and application forms can be had from Establishment Section-IV (Room No.205), New Administrative Block, University of Delhi, Delhi 110007, either personally or by sending a self addressed envelope (size 13 cm x 28 cm) with postage stamp worth Rs.8/-.

Prof. S. K. Wasan
REGISTRAR

Environmental Conservation for Sustainable Development

Pramod Singh*

Introduction

The issue of sustainable development is a very ticklish one if we think along with environmental conservation of a country like ours or even our planet. However, it is not impossible to conserve our planet but certainly it is a very stupendous task.

Our planet is facing the hazards of pollution of air, water, land, noise due to faulty orientation of science and technology, population explosion as well as our short-sighted and selfish interests and limitless desires. Evil effects of gadgets such as Tape Recorders, VCR, VCD, films has also resulted in erosion of the human values and the abandonment of our age old ideals and ethics based on long experiences. No doubt, today we have vast knowledge but we lack appropriate application of the same. Man seems to have lost his human character and works like a cog in a machine. We have invented nuclear weapons and have arsenals of biological warfare. This is the evidence of our increasing knowledge but our scientists have not given any thought regarding the disastrous effect which may happen in case the stock pile of bombs really blasts. Science is the product of human brain and it can work both in positive and negative direction. What is required is our wisdom to harness the positive aspects of the scientific and technological discoveries for enriching the quality of life and integration of science with sociology and spiritualism.

Marching towards a Catastrophe

The world is fast becoming restless about its future due to appalling pollution, Ozone-layer depletion, rising temperature. As far as our biological reserves are concerned no precise estimate can be made of the number of species that have been or are being lost in major habitats. Many species may become extinct before even they are discovered. It is estimated that a quarter of earth's total biological diversity is at a serious risk of extinction during the next 20-30 years. The tropical forests cover only 7% of earth's land surface but contain more than half of the species in the entire world-biota and by 2020 AD due to tropical deforestation 5 to 15% of the world species will be extinct. This

would amount to a potential loss of 15,000 to 50,000 species annually or about 40 to 140 species per day. The World Conservation and Monitoring Centre in Canada has recorded that some 22,000 species of flora and fauna are actually threatened with extinction. The main cause for the loss of biological diversity is habitat loss due to man-made phenomena, fragmentation, artificial modification and depletion of forest wealth. It has been estimated that 11.1 million hectare of tropical forests are eliminated every year (21.5 hectare every minute).

Water covers three quarters of the earth's surface, but more than 97% of earth's water is salt water in the Oceans and less than 3% of it is fresh water. Of the latter, 77% is frozen in polar ice-caps and glaciers, 22% is ground water and the remaining small fraction is in lakes, rivers, etc.

Fresh water provides sustenance to flora and fauna, constitutes the habitat for free-aquatic organisms and meets important agricultural, industrial and domestic needs. At present world-wide water withdrawal for irrigation accounts for about 68% of water use, 24% goes to industry and 8% to domestic, livestock, recreational and other uses. In India 93.37% is used for agriculture, 1.08% for livestock, 1.26% for industry and 3.73% for municipal and rural water supplies. It is also estimated that 80% of India's surface water is seriously polluted and at least 80% of our population does not have the access to safe drinking water. In USA 700 chemicals were detected in drinking water of which 129 are dangerous according to EPA.

Waste water (domestic, sewage and industrial effluents) are the major cause of pollution at surface, ground water and sea. The amount and the nature of waste-water, discharged vary from one area to another depending on population density, industrial concentration and type of industries. It has been estimated that about 300 billion cu m of waste-waters is discharged into the Sea. (more than 90% sewage and the rest industrial waste-water discharged separately or mixed with domestic waste-waters).

Population

India's population which is 844 million today, growing at the rate of 2.11%, every year adding over 17 m people each year. The population has its impact on natural resources as more population means, more houses at the cost of either agricultural land or defores-

* Head, Institute of Environmental Sciences, Chitrakut Gramoday Vishwavidyalay, Chitrakut-485 331.

tation and in India not more than 10% of the population have sanitary latrine, which means pollution of our water and soil.

Urbanisation and Industrialisation

About 27% (217 m) of India's population currently lives in urban areas. There are 3,500 towns varying in size from 5,000 persons in small towns to above 10 m in 'Class I' cities (317). Half of the urban population lives in 23 metropolitan areas and one sixth in the four largest cities – Bombay, Calcutta, Delhi and Madras. The Greater Bombay (12.57 m) and Calcutta (10.86 m) are among the largest metropolitan areas in the world. These urban centres have generated most-brutal and inhuman living conditions with large sections about 20 to 30% in squatter areas or slums. About 27% of urban population lives below the poverty line and 30-40% of the population of the metropolitan cities lives in slums, 27% does not have access to safe water, over 75% with no water-borne sanitation and a very high level of air pollution.

Slums are mostly the result of rural to urban migration. It is estimated that over 13,500 people move each day from rural to urban environment. These migrants consider this movement from villages to slums to be a solution, not a problem. Slums provide them low cost housing and low cost transportation. India has become one of the ten most industrialized countries of the world. The unplanned urbanisation has caused concentration of pollutants. Heavy vehicles cause 47% of the air pollution. The movement of automobiles in Delhi has increased from 12,000 in 1951 to 9.00 lakh in 1986. Two and three wheelers constituting 63% of the number of vehicles and accounts for 13% of total air pollution. Industrialisation without having adequate safety precautions has its own repercussions as evidenced from the horrendous tragedy of Union Carbide, Bhopal, which killed more than 5,000 persons and disabled lakhs of persons when Methyl Isocyanate crept into the houses of sleeping residents on the morning of December 3, 1984. The industries also create Asbestosis, Bysinosis, Silicosis, Pneumoconiosis, Pulmonary diseases, Tuberculosis, Cancer, etc. The particulate matter in air is also a big problem in four metropolitan cities which exceeds 360 mg/m while WHO standard is 150 mg/m.

Conservation of Biodiversity

The preservation and conservation of protected areas started with the establishment of Corbett National Park in 1936 in the foothills of the Himalayas. The Indian Board of Wildlife that was set up in 1952 has created consciousness for wildlife preservation and enactment of the Wildlife Protection Act in 1972 and the number of national parks and wildlife sanctuaries have grown rapidly. As of 1992, there are 75 national parks and 419 sanctuaries covering about 1,38,000 km² or about 4% of India's land-area. The protected areas

cover a wide range of ecosystems from wetland areas to mountain ecosystems. Wildlife Institute of India (1988) has also recommended to set up 148 national parks and 503 sanctuaries covering an area of 151,000 km² or about 4.6% of country's geographical area.

The Botanical Survey of India (1890) and the Zoological Survey of India (1981) have estimated 45,000 plant species, about 15,000 species of flowering plants, 5,000 species of algae, 1,600 lichens, 20,000 fungi, 2,700 bryophytes.

There are about 75,000 species of animals including 50,000 insects, 4,000 molluscs, 2,000 fishes, 140 amphibians, 420 reptiles, 1,200 birds and 340 mammals and other invertebrates.

It is estimated that 79 species of mammals, 44 of birds, 15 of reptiles and 3 of amphibians and nearly 1,500 plants species are going to be extinct in the near future. We have to protect their viable habitats and specific measures have to be taken to prevent poaching and trade of wildlife products such as ivory, rhino-horns, furs, skins, musk and peacock feathers.

India has the tradition of breeding domestic animals such as cows, goats, pigs, sheep, pigeons & horses. In our effort to increase milk yield through cross-breeding some of the original cattle breeds are in danger of becoming extinct.

There should be effort for the maintenance of the purity of breeds of our native animals. In the same way hybrid varieties of crops are rapidly replacing the land races. Out of an estimated 50,000 varieties of rice in India, the country may be dependent on just 300 in the next decade.

Conservation of Energy

Non-renewable energy constitutes roughly half of the energy utilized in India and rest from firewood, cow-dung, agricultural-wastes, etc. The consumption of commercial energy was 1,400 MW in 1947 and has marched towards 64,000 MW in 1990. About 60% of the commercial energy is produced from coal and its production is around 200 mt each year. India is the fifth largest producer of coal in the world. This has created a lot of environmental problems such as open-cast mining, degradation of land, deforestation, soil-erosion, land-slips and disruption of the aquifers. India's coal has a very high ash content. Disposal of the 35 to 40% ash obtained after the coal is burnt is a major problem. Singrauli, the Energy Capital of India which has an installed generation capacity of about 20,000 MW has destroyed the tropical forests & rich soils of its adjoining areas. Today, it is a wasteland due to polluted soil, air and water. The levels of particular matter and oxides of sulphur and nitrogen are ten times more the prescribed level recommended by the Government.

About 30% of electric power in India is generated by hydroelectric projects. Though, it is clean and renew-

able source of energy these projects have raised many issues such as the submergence of forests, ecological refugees, problems of drainage, soil-erosion and seismic impact. Most of the major hydro-electric projects have become the focus of debate of the day.

In commercial energy production, the natural gas and nuclear energy accounts for 2 and 2.5%. However, the nuclear energy can cause extreme damage in case of accidents. And nowadays, there have been protests against the nuclear plants at Narora, Kakrapar, Koodankulam and Nagarjunsagar.

For domestic energy, liquified petroleum gas (LPG) is fast becoming the popular cooking fuel specially in urban areas and its production has gone up from 6,71,000 t in 1985 to 27,64,000 t in 1990 which is considered as a cleaner and more efficient.

India has a tremendous potential in wind energy and it can generate 20,000 MW of electricity by it. The other important potential is energy from biomass including night-soil, solar-energy, small hydroelectric-plants, improved-chulhas, smokeless chulhas, gasifiers, etc. This time that the potentials of these sources be fully harnessed.

Technology Suitable for Income and Employment Generation for Rural Reconstruction

In India majority of people stay in rural areas and suitable strategy is required to distribute resources over a larger section of society and to provide basic needs of life. Therefore to prevent exodus from rural to urban area development of small-scale village industries is the need of the hour. This requires technical assistance to the rural mass at their door-step and the village industry plan for a family or a group of families. Schemes like gurmaking, processing of horticultural products, preparation of dairy products, mushroom cultivation, seed-production and processing, nursery management, seedling production, fish-seed production, poultry-farming, bee-keeping, sericulture and lac-cultivation can be taken up in most of our rural areas. For the landless groups rope-making, carpentry, basket-making, brick-making, bidi-making, collection and processing of tendu-leaves, minor-forest-produce processing, tractor, cycle, jeep-repairing, handlooms, tailoring, etc. are more suitable vocations.

This should be tagged with the health, nutrition and hygiene programmes and awareness on protection of environment.

Communication and Mass-media

The communication technology particularly Radio/TV can play a vital role in creating awareness among people about the hazards of environments pollution and also to impart functional skill to the rural mass. The programme of Doordarshan for farmers has been received well. Similar programmes in other vocations

could be beamed both through Radio & TV. These aforesaid media can create awareness for water pollution due to the use of inorganic compost and pesticides/insecticides like Aldrin, Lindane, 2-4D, as well as about domestic sewerage, industrial effluents, water conservation, family planning campaign, and afforestation through one man one tree, integration of science and spiritualism, conservation of flora and fauna, biodiversity, use of biogas plants, green manure, compost & slurry, control of pest through biological and natural methods, conservation of earthworms and frogs to keep away waste-land and malaria, use of Indian breeds of animals and seeds through various formats.

Our Futuristic Task

A better future for all of us can only be ensured through sustainable development of environment. We have to decide what is wrong and right. What should be the orientation of science and technology?

Former Chief Justice of Supreme Court Shri P.N. Bhagwati said ecological deficits are the result of miscalculations, but more often they result from a lack of perspective on the parts of planners and policy makers, personal greed, loss of social discipline and a decision to satisfy today's needs and derives at the expense of tomorrow.

This in effect means mortgaging the future since ecological deficits diminish the resource-base on which the productivity of the economy depends. This is unfortunately happening in most parts of the globe.

Given Below are some suggestions for the sustainable development of the country :

1. For integrated development of the country, an intensive scientific movement and Swadeshi thought is to be evolved and initiated.
2. Physical and Spiritual Sciences should be integrated along with their Indianisation.
3. Science, Technology and Swadeshi movement should be revived for national reconstruction.
4. Emphasis on Ayurveda, Siddha, Vastu-Vidya and Dhyan-Yoga for individual and communal health.
5. Modern Science is the product of western countries and for Swadeshi Science, we have to integrate the scientific ideas of ancient philosophers and scientists like Aryabhat, Varah-mihir, Dronacharya, Charak, Chyavan, Vasistha, Vamana, Jamdagini, Vishwamitra, Parasara, Gautam, Vidur and Dhanwantari to the modern sciences and orient our young scientists towards it.
6. In our research papers, books and text-books our ancient philosophy, Scientific theory, methodology and approaches are to be published in all regional languages.

- 7 Swadeshi Science have to be given weightage in national and international journals.
- 8 For industrial production our own technology or the technology based on the suitability of our climatic condition is to be implemented. To check the concentration of pollution, the technique of decentralisation and small and minor industries are to be given preference.
- 9 In Agriculture we have to conserve our traditional seeds and in place of inorganic compost, insecticides and pesticides, we may use organic compost, green manure, blue-green algae, and biological control technique for sustainability.
- 10 Rural reconstruction can only be done by its proper environmental conservation through small industries, afforestation, proper agricultural technique, methodology as well as pre and post harvest technology
- 11 To check the corruption, feudalism, nepotism, narcotic drug addiction, people's consciousness movement and NGO's activities are to be supported
12. To check the ecological refugees, deforestation, erosion, earthquakes, depletion of biological reserves and electric transmission loss we have to put emphasis on minor dams rather than big ones
- 13 For proper communication and implementation of the activities in rural areas, NGO's and change agents are more effective. They can mould the people, change their mind and provide them a

better direction for reconstruction.

14. Universities and Institutes must include foundation courses, vocational training and action-oriented research in its courses.
15. In rural reconstruction, a family can be taken as micro-unit and for each 10 or 15 villages their should be a 'service centre' and a block head-quarter to be considered as a 'growth centre'. The plan for the reconstruction should be developed at block level and then it should go for sanction to the higher authorities.
16. The last but not the least, appropriate/proper Swadeshi laws, educational technology, industries, environmental conservation is to be planned for the benefit of the humanity.

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Research at Manipur University, (1980-1991)

Highlights of Research Projects

Ramansu Lahiri*
Krishnan Subramaniam**

[The first three papers in this series (published in *University News* dated Nov 9, 1992 May 3 and May 10, 1993 respectively) were an attempt to record the various aspects of the Research Scholars in the backdrop of land and the people of the State of Manipur. The present paper seeks to highlight the Research activities, specifically the research schemes awarded/undertaken to/by the faculty members and the University.]

Introduction

The paramount objective of Research is "to map out a particular aspect of most relevant social/scientific reality" or "to explain the occurrence of a particular social/scientific phenomenon". The preference of a research problem depends, however, on the training, experience and inclination of the researcher. Appropriate research design 'must start with formulating a research problem and proceed on to locate it in some theoretical perspective and link it up with whatever findings exist in the area of enquiry'. An overview of pertinent literature in the area of enquiry, therefore, becomes a decisive element of research layout. Besides 'linking', an overview of literature serves another important function. In the reality of the vast research activities, there are greater risk of duplication or near repetition of the same issue. A documentation on 'research in progress' or 'completed' or 'in plan' is of some assistance in counselling the would-be researchers of the areas of research that have already been taken care of. 'Anyone contemplating the prosecution of research must always pursue detailed searches and attempt to establish whether the project in mind has already been taken up'. Such scrutiny must cover not only the published sources and accepted projects, 'but also such material' as can easily be checked about research in progress or completed' area, period, significance and relevance of work; individuals, institutions and sponsors associate with the activity. The purpose of this paper is to cover these aspects and to introduce

itself as a 'document of queries' for the benefit of the researchers, scientists and departmental research committees.

Methodology

The information about the research projects awarded to the members of the faculty were collected from the Annual Reports (Volumes I to XI) of the Manipur University and by interviews with the involved academic.

Annexure portrays the research activities of the members of the faculty of Manipur University. The details have been categorized under School/Department Heading and then arranged year-wise (commencement), followed by the names of the investigators (in alphabetical order).

The Project titles are presented in key word forms. The financial support and the number of various positions involved (i.e. Research Associates, Senior Research Fellows, Junior Research Fellows, and others) were noted from interviews with the concerned investigators. The positions indicated against 'others' also include Project Assistants appointed against the positions of Junior Research Fellows for want of NET qualified JRFs. The amount of financial assistance reported with every project may not always indicate the exact figure. In some cases, the sum had been approximated, (as supplied by the concerned investigator at the time of interview) for the records were not available readily.

Besides the Research schemes awarded/undertaken by the members of the Faculty, the University has been awarded two major, prestigious schemes, viz. the Centre for Manipur Studies and Tribal Research, the Audio Visual Research Centre, by the University Grants Commission. The research activities of these specialized centres have also been highlighted.

For this paper, the projects that were taken up by the individual members of the faculty without sponsors and those not reported in the Annual Reports were not taken into account.

* Assistant Professor, Department of Library & Information ** Assistant Registrar & Spl PA to the Vice-Chancellor, Manipur University, Imphal 795 003.

Research Projects

The period 1980-91, as Figure 2 illustrates, witnessed the grant of 133 research schemes by 18 sponsors. The fiscal support extended was to the tune of Rs. 188 lakhs. The quantum of schemes and grants sponsored by different agencies besides being a milestone for measuring the progress of research, attests to the qualitative research activities of the University and its members of the faculty

Schools & Departments of Studies

Seven departments in the School of Science (consisting of 9 departments) were granted 112 (84%) research schemes (Figure 4). The scientists from Department of Life Science of the University bagged more than 50 percent (71) of the Projects. The Department of Earth Sciences was awarded with 14 research projects, followed by Chemistry (10), Physics (7), Mathematics (6), Statistics (2) and Anthropology (1). The department of Life Science had consistently received grants for research schemes every year from 1982

The rest (16%) of the research schemes went to the School of Social Science and the School of Humanities (Figure 3). Four departments in the School of Social Science (comprising 6 departments) fetched 14 research projects. The Department of Economics was awarded with 8 projects, followed by History (4), and Commerce and Library Science (one each). Three departments in the School of Humanities (consisting of 5 departments) benefited by 7 research projects – Manipur (3), English (2) and Linguistic (2)

There was greater fluctuation in the mobility of receiving research grants by the Departments. The years 1989 and 1990 witnessed the largest input (Figure 1).

Investigators

Of the total faculty strength of 163 in 20 departments under three Schools of Studies, 65 (including four female) members (see Annexure) from fourteen departments were bestowed with research projects. The table below describes the involvement of members from various departments (A) and positions (B) in the Research schemes.

(A)

Department	Faculty Members in position (as on Dec '91)	No. of Faculty members awarded
English	9	2
Linguistics	7	2

Manipuri	12	2
Anthropology	5	1
Chemistry	12	6
Earth Science	8	7
Life Science	21	25*
Mathematics	11	4
Physics	11	3
Statistics	3	1
Commerce	6	1
Economics	10	6
History	11	4
Library Science	3	1

[* - Including retired member of the faculty]

(B)

Year	Professors	Readers	Lecturers
1982-84		17(19) [*]	1(1)
1985	1(1)	6(6)	2(2)
1986	2(2)	2(2)	4(4)
1987	5(8)	4(4)	3(3)
1988	1(1)	2(2)	3(3)
1989	10(14)	8(8)	6(6)[**]
1990	5(5)	9(9)	11(11)
1991	5(6)[*]	1(1)	7(9)[*]

[*] One Project undertaken by two investigators jointly

[**] Including two Research Associates

(n) No. of Projects awarded

Areas of Research

Despite the fact that the University lacks adequate infrastructural and fiscal facilities, the highly qualified teachers of the University have been contributing their best to aid and to accelerate the development of the State and the Region. It is encouraging to note that the research taken up is generally related to the problems of development and nation building and continues to deal with subjects which are not only of academic relevance but also of enough value to policy planners.

The Research areas covered in the projects are highlighted in the Annexure.

Output

As the Annexure reveals, 147 (Research Associates 5, SRFs 12, JRFs 66 and others 64) researchers (excluding the investigators) were associated (appointed) with (in) the projects. A larger section of this team has already completed their programme and were awarded Ph.D (see *University News*, November 9, 1992) with assistance from these projects.

Besides the Ph.Ds awarded as a result of these research work, the investigators have published/ presented papers in national and international journals/forums.

These research projects also enabled the departments to augment considerably the laboratory and other infrastructural facilities in the departments/ laboratories.

Sponsors

Figure 2 exhibits that eighteen sponsors offered financial assistance to 133 research schemes by 65 members of faculty of the University. Of this fourteen were national agencies and four were state agencies.

The DSTE financed 34 schemes, followed by UGC (33), CSIR (17), DST (16). Others extended assistance to schemes ranging between 01 to 10. The North-Eastern Council, the apex body of the Government of India for planning and development of the Northeastern Region had sponsored only one scheme.

While the DSTE sponsored the maximum number of schemes, DST tops the list with highest amount of fiscal assistance (Rs. 44.54 lakhs), followed by the DOE (Rs. 30 lakhs), CSIR (Rs. 27.39 lakhs), UGC (Rs. 21.99 lakhs), DSTE (24.87 lakhs), DBT (Rs. 13.00 lakhs), ICAR (Rs. 12.39 lakhs). Others' financial support varied from Rs. 0.03 to Rs. 4.65 lakhs.

While the state agencies financed 41 schemes to the tune of Rs. 25.82 lakhs, the national agencies supported 92 projects worth Rs. 1.63 crores. The Department of Life Science obviously received a lion's share, nearly Rs. 1.30 crores for 71 projects from nine agencies. The Departments of Earth Sciences, Physics and Chemistry received Rs. 20.00 lakhs (14 projects/5 agencies), Rs. 16.30 (7 projects/4 agencies) and Rs. 9.60 lakhs (10 projects/ three agencies), respectively.

Special Centres of Research

Besides the research schemes awarded to the members of the faculty, the University Grants Commission has also extended financial support to the following specialized centres of research. The recurring assistance from the UGC would be for five years and it is assumed that the University would continue with the

research with funds made available to it by the State Government for these specialized centers.

Centre for Manipuri Studies & Tribal Research

This Center was established in 1988 with the main objectives of promoting and encouraging the study and research in history, culture, languages and literature of the Northeastern India and to promote the cause of cultural unity and national integration, particularly in vital and sensitive areas. The Centre has two wings, viz. (i) Manipuri Studies and (ii) Tribal Research. Three Research Associates and six JRFs in the Centre are engaged in research in the following spheres under the guidance of faculty members from the departments of Manipuri, Linguistics, History etc.

Manipuri Studies :

Lai Haraoba, Sankirtana; Pena; Khongjom Parba; Moirang Parba; Martial Arts; Wari Liba; Lairik Thiba-Haiba; Linguistic study of the dialects of Manipur; Manipuri Lexicography; History of Manipuri Literature; Folklore; Manuscriptology; Encyclopaedia of Manipur art and life; evolution of Manipuri scripts, calendaric festivals, Khongjom parba and pena, Kakching dialect; etc.

Tribal Research :

Langthabal Chingthak; Tribal polity formation among the tribes of Manipur; Tribal development during Plan Periods (1951-91), Tribal profile of Manipur, Kharam tribe of Manipur; Bibliography of tribal studies, Tribes in Northeast India in historical perspective; Marams of Manipur; Powers and functions of District Councils; Demographic survey of some tribes in Chandel District, Ethnographic survey of Mao tribes; Ethnohistory of Kharam tribe; etc.

The centre has brought out about 18 research reports.

Audio Visual Research Centre

This centre was established in 1989 with the objective to promote educational television programmes for enrichment of higher education through the country-wide class room programmes under the UGC.

The Centre, with a team of 14 personnel and a Joint Director, has produced five films with the help of equipment borrowed from the EMRC, Ahmedabad. The first three films – *Crawling creatures*, *Tribal Arts & Architecture* and *University Profile* – were produced in collaboration with the EMRC, Ahmedabad. The other two programmes – *Manipur Assembly Elections : Profile of Kangpokpi Constituency* and *Orchids* – were entered into the UGC Video Festival, 1990. "Orchids" was commended for its production values and "Manipur Assembly Elections" was recommended for its auditory values. Another film "Bamboo - the Tree Grass" was entered in the final Video Competition held at Pune in

1991. The Centre has taken up programmes on "Wet-land Eco system of Manipur Valley", "Traditional Sagol Kangjei", "Sekta Burial Mound" and "Potter Tradition of Manipur", etc.

The UGC has so far extended financial assistance to the tune of Rs. 13.30 lakhs and Rs. 115.24 lakhs for the Centre for Manipuri Studies and Tribal Research and Audio Visual Research Centre, respectively.

Conclusion

The academic gains from these research projects, can be reckoned through various publications of the research findings in national and international journals brought out by the project investigators and/or through the flag bearers of their projects (i.e. the research associates/research scholars who were awarded Ph.Ds as a result of their involvement in these projects). It is believed that this new breed (i.e. the research scholars) would carry on the programme further. The contribution of these research projects in real life can be felt only when the scientific conclusions obtained are made use of, by easily adapting and assimilating it in the system for better prospects and by combining traditional heritage with modern development. This objective could also be achieved by organizing suitable programmes to generate awareness in the people about the benefits that would accrue as a consequence of transfer of such scientific and technical know-hows

These research grants (of the tune of Rs. 3.00 crores, including the two special centers of research) have, besides enabling the University to award a number of research scholarships, strengthened the laboratory, library and other infrastructural facilities in the University.

An interesting by-way of the study lies in analyzing the economic value of these research works. At times one ponder as to "whether it is really worthwhile and whether the gains in skills, experience and outputs represent a good investment for the state/nation". Have the individual's valuable working life time, besides substantial amount of additional input, viz. supervision, administration, library and secretarial supports and also the capital inputs (building, equipment) etc., have really been examined any time in the light of cost-benefit analysis? However, this certainly is not an area of inquiry for this paper.

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PHYSICAL RESEARCH LABORATORY

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The Physical Research Laboratory makes four awards called "Shri Hari Om Ashram Prerit Dr. Vikram Sarabhai Research Awards", every two years from funds kindly provided by Pujya Shri Mota of Hari Om Ashram of Nadiad. These awards will be made to Indian Scientists, who are below 45 years of age, on 1st January 1993 for original work in the following fields.

- 1) Space Sciences (including Astronomy, Astrophysics, Planetary and Atmospheric Sciences).
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- 3) Electronics, Informatics, Telematics and Automation
- 4) Systems Analysis or Management including non-linear, non-equilibrium systems in natural and social sciences and technology.

Although the overall work of the candidates would be taken into account, the work done in India would be given prime consideration.

The candidate should have to his credit at least one or more of the following achievements :

- 1) Significant achievement in scientific research.
- 2) Important and successful adaptation of new technology.
- 3) Planning, development and implementation of systems in the context of science and technology.

The selections for the year 1993 will be completed by February 1994 and the awards presented on 12 August 1994.

The last date for receiving nominations is September 15, 1993. Sponsors are requested to send a two page note (6 copies) summarising the contributions and achievements of the sponsored candidate together with his/her biodata (6 copies) in a cover marked 'confidential', addressed to the Director, Physical Research Laboratory, Navrangpura, Ahmedabad 380 009.

More detailed information will be asked for by the Selection Committee, if considered necessary.

Figure 1
Research Projects Awarded to the University (Department & Yearwise)

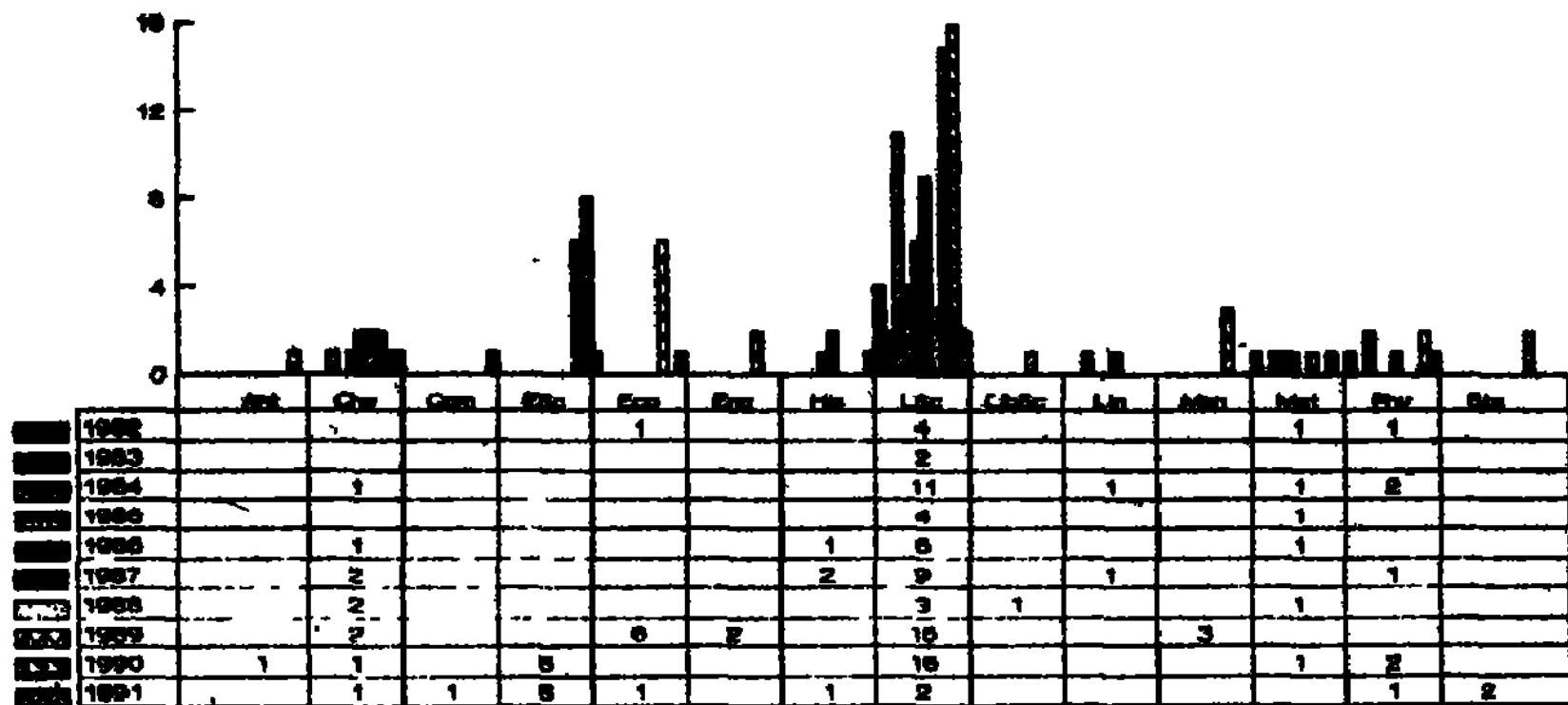
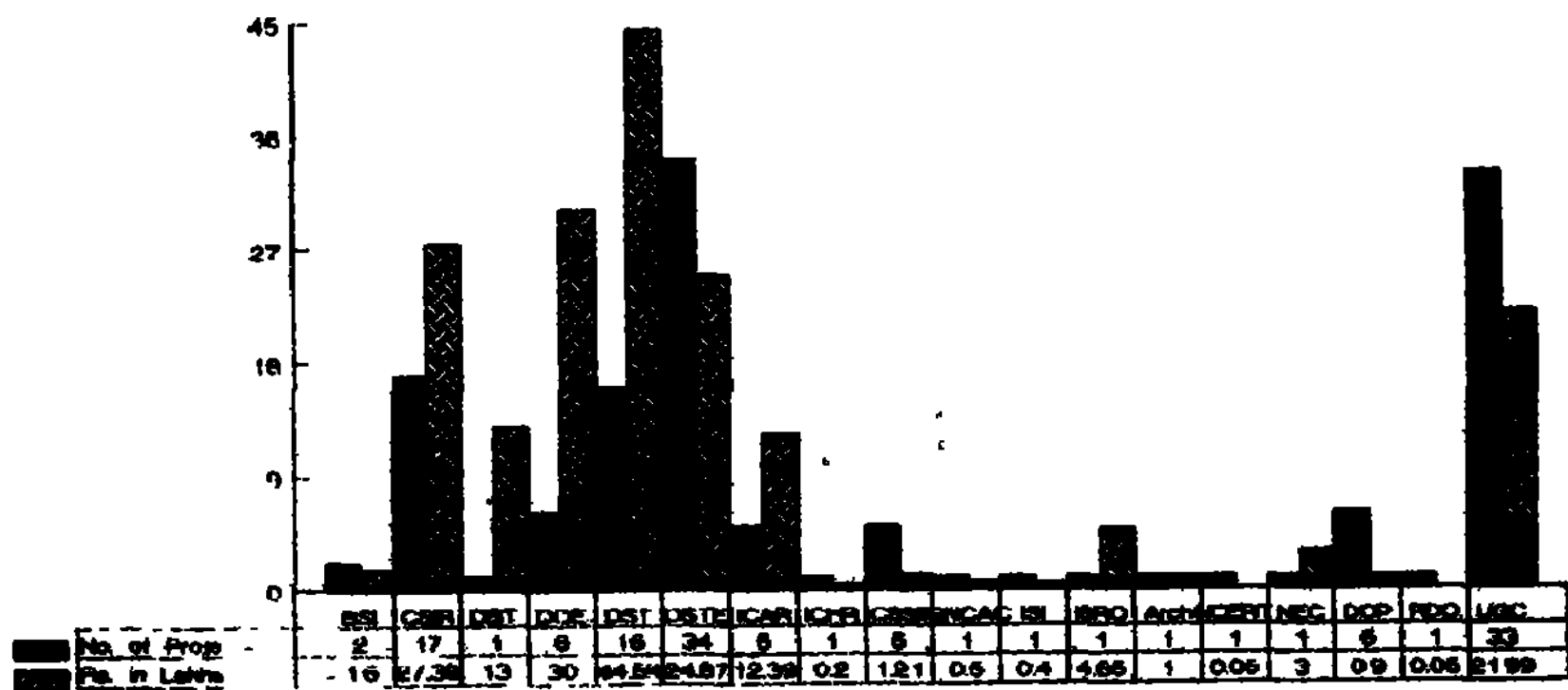


Figure 2



Sponsors of Research Projects & Extent of Financial Assistance

Figure 3

Research Projects Awarded to the Schools of Social Science & Humanities : Agencywise (1980-1991)

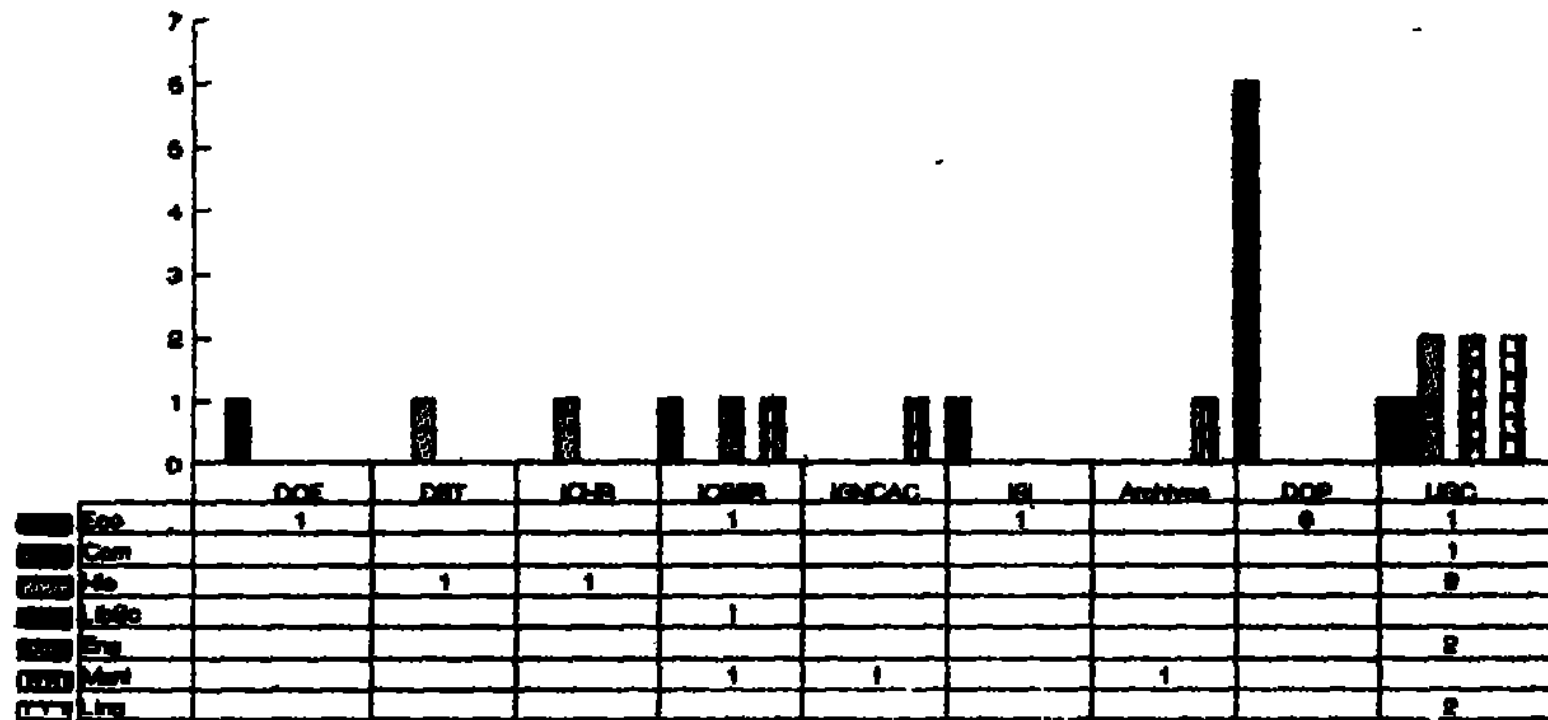
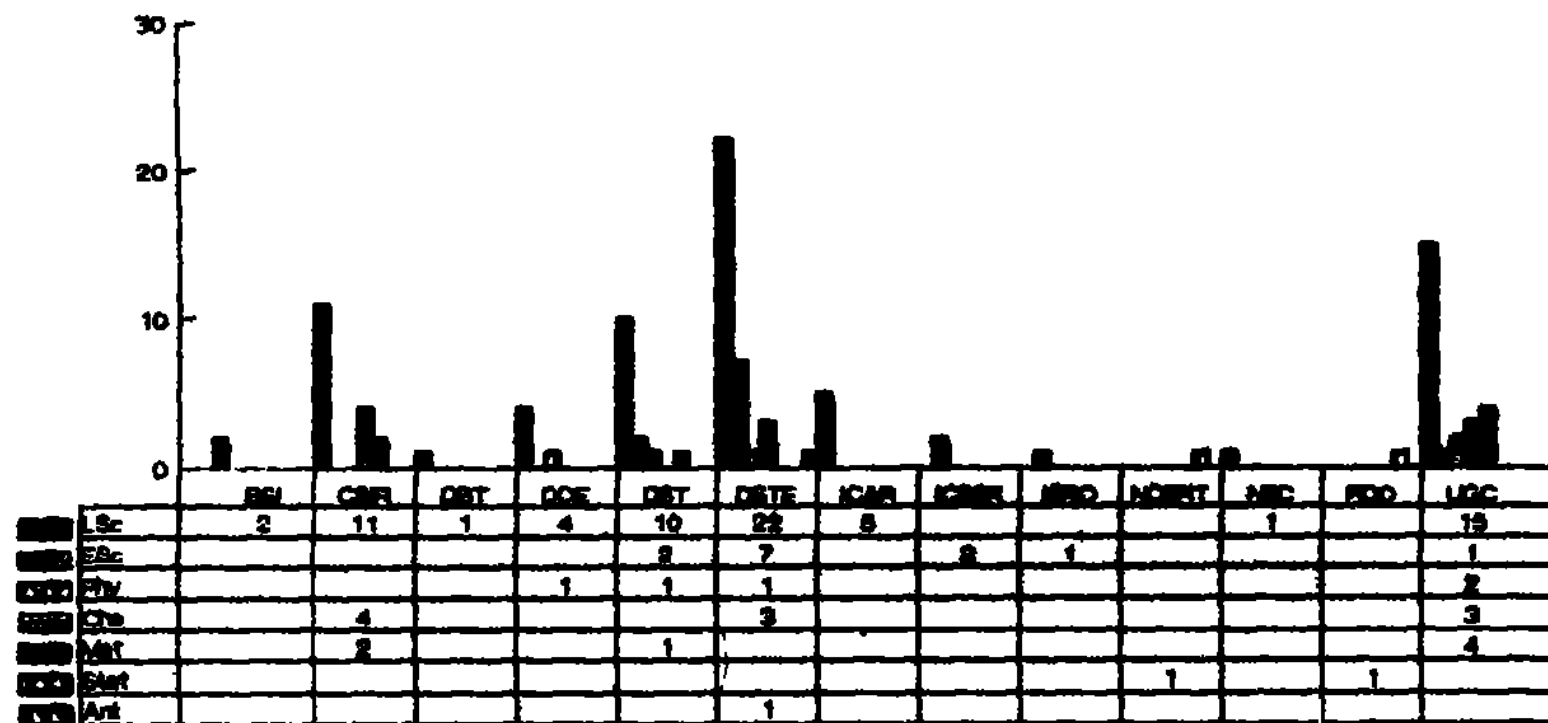


Figure 4



Research Projects Awarded to the School of Science : Agencywise (1980-1991)

Research Projects Awarded to the Members of the Faculty by Sponsoring Agencies (1980-1991)

Year	Faculty Member	Project in Key Words	Amount (Rs. in Lakhs)	SR	IP	SP	Sponsoring Agency
SCHOOL OF HUMANITIES							
DEPARTMENT OF ENGLISH							
1989	Khogendra N	Theatre, Traditional, Manipuri: Western & Eastern-Comparative	0.40		1		UGC
1989	Saha SC	Poetry, 20th Century	0.10				UGC
DEPARTMENT OF LINGUISTICS							
1985	Thoudam PC	Dialects, Manipur - Socio Linguistics	2.17	1	3	1	UGC
1987	Ningomba MS	Kuki-Chin Phonology, Comparative Study	0.70				UGC
DEPARTMENT OF MANIPURI							
1989	Babu IR	Manuscripts, Preservation, Publication	1.00				NI Arch.
1989	Babu IR	Folklore, Manipuri	0.25				ICSSR
1989	Gurindro P	Rock Carving, Engraving, Painting	0.50				ICNCR
SCHOOL OF SCIENCE							
DEPARTMENT OF ANTHROPOLOGY							
1990	Sarat Chandra K	Children, Growth, Nutrition, Manipur	0.36	1			DSTE, GOM
DEPARTMENT OF CHEMISTRY							
1984	Manihar Ak	Donor Properties, Chronic Imide	0.15				UGC
1986	Mitra S	Thermo Chemistry: Organotin Complexes	1.50		1		CSIR
1987	Dhureshwar M	Conformational Analysis	1.34		1		CSIR
1987	Rupachandra L	NADP - Dependent Isocitrate Dehydrogenase	3.71		1		CSIR
1988	Rupachandra L	Malate Dehydrogenase	0.08				UGC
1988	Mitra S	Solid State, Metal Diamine Complexes	0.15				UGC
1989	Khairam IS	Salt Wells, Mineral Contents, Manipur	0.14				DSTE, GOM
1989	Khairam IS	Lomba, Chemical Examination	0.30				DSTE, GOM
1990	Nigam PC	Kinetics, Mechanism, Fast Multistep Coordination Reactions	1.86	1			CSIR
1991	Manihar Ak	Nambal River, Heavy Metals, Manipur	0.10			1	DSTE, GOM
DEPARTMENT OF EARTH SCIENCES							
1990	Anand, Rajesh	Ophiolite, Chromium, Lithogeochemical Exploration, Tuensang, Nagaland	2.04				DST, GOI
1990	Arun Kumar	River Basin, Imphal River, Catchment Study	0.35			1	DSTE, GOM
1990	Arun Kumar	Ground Water Exploration, Manipur	4.65	2		1	ISRO
1990	Deva N	Ground Water, Imphal Valley	0.20				DSTE, GOM
1990	Kushwaha, RAS	Flood, Imphal River	0.18				DSTE, GOM
1990	Singh RP	River Basin, Int., Catchment Study, Manipur	0.45			1	DSTE, GOM
1991	Arun Kumar	Watershed Management, Barak, Manipur	10.66			6	DST, GOI
1991	Ibalombi S	Minerals, Radioactive, Manipur	0.20				DSTE, GOM
1991	Ibalombi S	Ground Water, Imphal Zone					DSTE, GOM
1991	Singh RP	Development Planning, Chandel, Manipur	0.51			1	ICSSR

Research Projects Awarded to the Members of the Faculty by Sponsoring Agencies (1980-1991)

1991	Singh RP	Geography, Physical, Cultural, Nagaland	0.12					UGC
1991	Yadav RS &	River Basin, Thoubal, Catchment Study	0.45				1	DSTE, GOM
1991	Singh RP							
1991	Yadav RS	Urban Environment, Quality of Life, Imphal	0.32					ICSSR
DEPARTMENT OF LIFE SCIENCES								
1982	Janmejy L	Bamboo, Manipur (Himalayan Ecology)	7.00			6	6	DOE, GOI
1982	Kundu SC	Silk worms, Manipur	0.20					UGC
1982	Yadav PS	Grass Land, Eco System, Manipur	1.20			1		CSIR
1982	Yadav PS	Forest, Eco System, Manipur (Hum-Eco)	5.00			3		DOE, GOI
1983	Tombi H	Animal Species, Identification - Chemical Methods	0.51			1		CSIR
1984	Ghalak J	Flora, Tengnoupal	0.80					BSI
1984	Jitendra G	Algae, Cytogenetic Investigation-Manipur	0.15					UGC
1984	Kameshwar Th	Aphides Biosystematics, Natural Enemy, Manipur	0.83			1	1	DSTE, GOM
1984	Kameshwar Th	Aphides, Enemies, Tamenglong	0.07					UGC
1984	Kumar S	Legumes, Nonconventional, Northeast India	6.58	1			5	DST, GOI
1984	Pathak VK & Lal P	Birds, Thyroid Activity (Seasonal)	3.57			2		CSIR
1984	Pathak VK	Jungle Reproductive & Behavioural Biology	0.10					UGC
1984	Prasad B	Insect Pests, Biology & Ecology	1.00		1			CSIR
1984	Prasad B	Endangered Species, Salamanders, Manipur	0.05					UGC
1984	Sharma R	Evolution, Biochemical Adaptation	0.10					UGC
1984	Tombi H	Fish, Fauna - Survey, Manipur	0.60			1		DSTE, GOM
1985	Irabanta N	Crop Diseases, Fungal Air Spora, Imphal	1.10			1	1	DST, GOI
1985	Kameshwar Th	Aphidicolous Ants, Biosystematics, Ecology	1.67		1	1		CSIR
1985	Sinha SC	Flora, Tamenglong	0.80					BSI
1985	Tombi H	BioEcology, Conservation, Deer, Brow Anteloped	4.00		1	2	1	DOE, GOI
1986	Chhetry, GKN	Jhum Cultivation, Damaged Lands, Recovery	0.06					UGC
1986	Jitendra G	Bamboo, Karyo Systematic Survey, Manipur	1.35			1		DST, GOI
1986	Kumar S	Medicinal Plants, Northeastern Region	3.00					NFC
1986	Kundu SC	Eri Silkworms, Cytogenetics	1.85			1		CSIR
1986	Lal P	Amor Reproduction	0.10					UGC
1986	Vishwanath W	Food Value, Endemic Fishes, Manipur	0.84			1		CSIR
1987	Dhanachand Ch	Sugarcane, Manipur	1.00			1		CSIR
1987	Hanuman Singh	Thyroid & Steroid Hormones, Fish Culture	1.21					DST, GOI
1987	Kundu SC	Pineapple Improvement, Manipur	6.88			2	2	DST, GOI
1987	Prasad B	Insect pests control, Mango, Manipur	1.86		1			ICAR
1987	Shantibala GA (Ms)	Mushroom, Physiological, Biochemical, Manipur	0.60					DSTE, GOM
1987	Tombi H	Wetlands, Ecosystem, Fisheries, Manipur	7.00			2	1	DOE, GOI
1987	Tombi H	Fishes, Hill Stream, Manipur	0.60			1		DSTE, GOM
1987	Tombi H	Indigenous fish culture, Manipur	2.50		2		1	ICAR
1987	Tombi H	Fish Production, Limnology, Water Bodies, Manipur	2.00			2		UGC
1988	Dhanachand Ch	Rice Plant Parasite, Nematodes, Manipur	0.11					UGC
1988	Tombi H	Environmental Status, Manipur (1988)	0.75			1		DSTE, GOM
1988	Yadav PS	Savanna, Ecosystem	5.00			2	1	UGC
1989	Bhagirath Th	Rice, Sticky, Improvement	0.47					DSTE, GOM
1989	Dhanachand Ch	Nematodes, Barana Plant	0.42				1	DSTE, GOM
1989	Dhanpati L (Ms)	Elina Biology, Manipur	0.50					DSTE, GOM
1989	Hanuman Singh	Monopterus Albus, Sex Reversal, Environmental	1.10				1	CSIR
1989	Irabanta N	Allergens, Respiratory, Manipur	2.50		1	2		ICAR

Research Projects Awarded to the Members of the Faculty by Sponsoring Agencies (1980-1991)

1989	Janmejy L	Nambol & Naga River, Catchment area	0.56		3		DSTE, GOM
1989	Jayia RK (Ms)	Orchids, Manipur	0.30				DSTE, GOM
1989	Kundu SC	Tasar Silk Worms, Genetics, Manipur	2.00		1		UGC
1989	Manihar B	Pinus Insularies, Forests, Manipur	0.54			1	DSTE, GOM
1989	Manihar B	Forest Pinus Industries, Ecological Study	0.54				DSTE, GOM
1989	Pathok VK	Breeding Biology, Avi Fauna, Imphal Valley	0.97			1	DST, GOI
1989	Prasad B	Oak Plantation, Insect Pests, Bioecology	0.30		1		DSTE, GOM
1989	Sinha SC	Ethno Biology, Manipur Hills	0.50		1		DSTE, GOM
1989	Tambi H	Environmental Monitoring, Manipur	7.00			3	DSTE, GOM
1989	Vishwanath W	Fish, Processed, Fermented, Nutritive Evaluation	1.26		1		DST, GOI
1990	Bhagirath Th	Microtoens Cymos, Complasm, Cyto genetics	1.53		1		ICAR
1990	Bhagirath Th	Contraceptive Agent, Mitic Chromosomes, Effects	0.10				UGC
1990	Chhetry GKN	Rice., Fungal Disease, Sador Hill Districts, Manipur	0.40			1	DSTE, GOM
1990	Hanuman Singh	Monoptrus Albus, Sex Reversal, Endocrine Control	4.00		2	1	ICAR
1990	Irabanto N	Aerophycology, Imphal	1.25		1		UGC
1990	Kameshwar Th	Fogaceous Plants, Manipur	3.32		2		CSIR
1990	Kameshwar Th	Aphides, Cruciferous crops, bioecology, Manipur	0.35			1	DSTE, GOM
1990	Kundu & Jilendra	Plant Tissue Culture (Laboratory)	5.56	1		1	DSTE, GOM
1990	Lal P	Birds, Neuro Endocrinology	1.63			1	DST, GOI
1990	Manihar B	Red Algae, Fresh Water, Ecology, Manipur	0.09				UGC
1990	Shantibata GA (Ms)	Aquilaria Agalocha Infection-Investigation	0.90				DST, GOI
1990	Sharif UA	Fish Embionic, Physiology, Swampy Areas, Manipur	0.35			1	DSTE, GOM
1990	Shyamkesho M	Biological Indicators, Imphal & Nambol Rivers	0.36			1	DSTE, GOM
1990	Varatharajan, R	Thrips, Species, Bioecology & Biosystematics, Manipur	1.84			1	DST, GOI
1990	Varatharajan R	Thrips, Weed Infecting, Manipur & Nagaland	2.20				CSIR
1990	Vishwanath W	Fish, Microbiological Environment, Manipur	0.35			1	DSTE, GOM
1991	Janmejy L	Fermented Food Products, Technology, Manipur	13.00	1	2	2	DBT, GOI
1991	Tambi H	Environmental Impact, Loktak HE Project	0.40		1		DSTE, GOM
DEPARTMENT OF MATHEMATICS							
1982	Bhanira KS	Newton Stars, Slow Rotation	0.12		1		CSIR
1983	Tarachand RK	Spherically Symetric Cosmological Problems	0.03				UGC
1984	Bhanira KS	Relativistic Magneto Hydrodynamics	0.17				UGC
1985	Gupta RS	Human Joints, Biomechanical Studies	0.60		1		CSIR
1986	Gupta RS	ms Lubricated Bearings, Rotating Forms, Theoretical	0.10				DST, GOI
1988	Bhanira KS	Special Functions	0.10				UGC
1990	Ranjit M	Fixed Point Theorems, Applications	0.03				UGC
DEPARTMENT OF PHYSICS							
1984		Loktak HE Project, Hydrologic, Ecological (Him-Eco)	3.00		2		DOE, GOI
1987	Garia RK	Gems, Defects Study (by) Thermoluminescence	1.80		2		UGC
1990	Nandakumar H	Minerals, Radio active, Manipur	0.54				DST, GOM
1990	Nandakumar H	Super Conducting Materials, High Temporation	3.25				UGC
1991	Nandakumar H & Sumitra P (Ms)	Substitute Ferrites, Mossbauer, Electrical, Magnetic Properties	6.72				DST, GOI
DEPARTMENT OF STATISTICS							
1991	Lodu L	Demography, Health Services, Analysis	0.05				MO, GOM
1991	Lodu L	Stagnation, Wastage, Primary Levels, Analysis	0.05				WERT

Research Projects Awarded to the Members of the Faculty by Sponsoring Agencies (1980-1991)

		SCHOOL OF SOCIAL SCIENCES			
DEPARTMENT OF COMMERCE					
1991	Prochan BB	Corporate Financial Reporting	0.06		UGC
DEPARTMENT OF ECONOMICS					
1982	Dey PC & Ibolan M	Panchayati Raj, Manipur Valley	0.10		ICSSR
1982	Ibolan M	Forest Resources, Manipur (Hm - Lco)	2.00	3	DUE, GOI
1985	Tombi L	Socio Economics, Demography Trends	0.40		ISI
1989	Amar Y	Transport, Communication, Manipur	0.15	2	DOP, GOM
1989	Ibolan M	Forest Resources, Management	0.15	2	DOP, GOM
1989	Islamuddin, Md	Planning Land Crop	0.15	2	DOP, GOM
1989	Mabakishore H	Eighth Plan, Non Governmental Agencies	0.15	2	DOP, GOM
1989	Nabakishore H	NREP, RLEP, Manipur	0.15	2	DOP, GOM
1989	Tombi L	Planning, Population, Manipur	0.15	2	DOP, GOM
1991	Ibolan M	Strulos, Fertility Link, Manipur Women	1.40	1	UGC
DEPARTMENT OF HISTORY					
1986	Kabui G	Development, technological Growth, Identification, Endogenous factors	1.30		DST, GOI
1987	Pandey SN	History, Manipur - Source Materials	1.00		UGC
1987	Verma (H)	Nupilan, Manipur, Oral Evidence	0.20		ICHR
1991	Loi Dena	Tribal Education, Missionary, 1876-1967, NE India	0.40		UGC
DEPARTMENT OF LIBRARY SCIENCE					
1988	Idhar R	Lib Control System, NE Region Universities Libr	0.05		ICSSR

BSI = Botanical Survey of India

CSIR = Council of Scientific & Industrial Research

DBT = Department of Biotechnology

DOE = Department of Environment

DOP = Department of Planning, Manipur

DST = Department of Science & Technology

USTE = Department of Science, Technology & Environment NCTE = National Council of Educational Research & Training

GOI = Government of India

GOM = Government of Manipur

ICAR = Indian Council of Agricultural Research

ICHR = Indian Council of Historical Research

ICSSR = Indian Council of Social Science Research

ISRO = Indian Space Research Organization, Bangalore

ISI = Indian Statistical Institute, Calcutta

ICNCAI = Indira Gandhi National Centre for Arts & Culture

NIArch = National Archives

NEC = Northeastern Council, Shillong

RDO = Research & Development Organization

UGC = University Grants Commission

[Source: I to XI Annual Reports, Manipur University]

Curriculum of Academic Staff Colleges

Views of Administrators and Participants

Rajendra Pal*

It is an interesting study to assess the views of the participants and administrators of Academic Staff Colleges (ASC) regarding their attitudes towards the academic input (curriculum) being provided during orientation programmes. The views of Directors and participants of ASC about the curriculum on orientation programme have been assessed through Semantic Differential Scales.

The sample comprised 25 participants of ASC, Kurukshetra University, Kurukshetra, 21 participants of ASC, Jamia Millia Islamia, New Delhi, 10 participants of ASC, University of Delhi, Delhi, seven participants of ASC, Jawaharlal Nehru University (JNU), New Delhi and 18 Directors of ASCs of other universities. The participants were trained in subjects like - Physics, Chemistry, Botany, Zoology, Mathematics, Commerce, Psychology, Hindi, English, Urdu, Oriya, Telugu, etc.

For the collection of data Semantic Differential Scales were developed by the investigator. The Semantic Differential Scale consisted of 14 different contrasting bipolar characteristics. Each characteristic was presented in varying degrees (seven point scale) from highest to the lowest and vice versa. Six out of 14 bipolar adjective sets of curriculum were reversed at random. Reversal were used to counteract response bias tendency. The respondents were asked to rate the most appropriate degree for the given adjective sets of ASC curriculum.

The data were collected from the participants at the time when their orientation programmes were near completion, and from the Directors of ASCs during their two-day review meeting at National Institute of Educational Planning and Administration (NIEPA), New Delhi.

The data are presented in the following Table :

Table 1 : Directors' and Participants' views on seven points Semantic Differential Scale

ASC CURRICULUM									Total	Mean
* irrelevant	2(0)	0(0)	3(0)	24(4)	95(0)	90(6)	140(77)	relevant	354(87)	5.62(6.6)
adequate	49(35)	72(24)	50(0)	64(8)	30(0)	6(0)	5(2)	inadequate	276(69)	4.38(5.31)
* unsystematic	3(2)	2(0)	30(0)	76(0)	30(10)	84(12)	70(49)	systematic	295(73)	4.68(5.62)
* passive	4(1)	8(0)	12(3)	72(4)	60(3)	60(12)	77(49)	active	293(73)	4.65(5.53)
flexible	98(63)	102(12)	45(5)	52(0)	30(3)	0(0)	0(0)	rigid	327(83)	5.19(6.38)
* conservative	3(0)	6(0)	15(3)	36(4)	60(0)	120(6)	77(70)	progressive	317(83)	5.03(6.38)
utilitarian	112(35)	48(24)	60(5)	64(12)	15(0)	6(0)	3(0)	useless	308(76)	4.89(5.85)
natural	42(35)	72(12)	60(25)	80(0)	27(0)	4(0)	2(1)	artificial	287(73)	4.56(5.63)
**heavy	5(0)	12(0)	18(9)	80(20)	48(9)	12(0)	5(2)	light	180(40)	2.86(3.08)
decentralised	63(21)	36(12)	25(10)	72(16)	33(0)	18(0)	5(2)	centralised	252(61)	4.00(4.69)
integrated	70(35)	60(18)	85(10)	32(4)	36(3)	4(0)	4(1)	disintegrated	291(71)	4.62(5.46)
explicit	28(21)	36(12)	50(15)	116(16)	15(3)	6(0)	6(0)	implicit	257(67)	4.08(5.15)
* unpleasant	3(0)	0(0)	15(3)	64(0)	105(5)	60(24)	56(49)	pleasant	303(81)	4.81(6.23)
accomodative	20(49)	54(18)	70(5)	72(14)	18(0)	10(0)	1(1)	unaccommodative	245(87)	3.88(6.69)

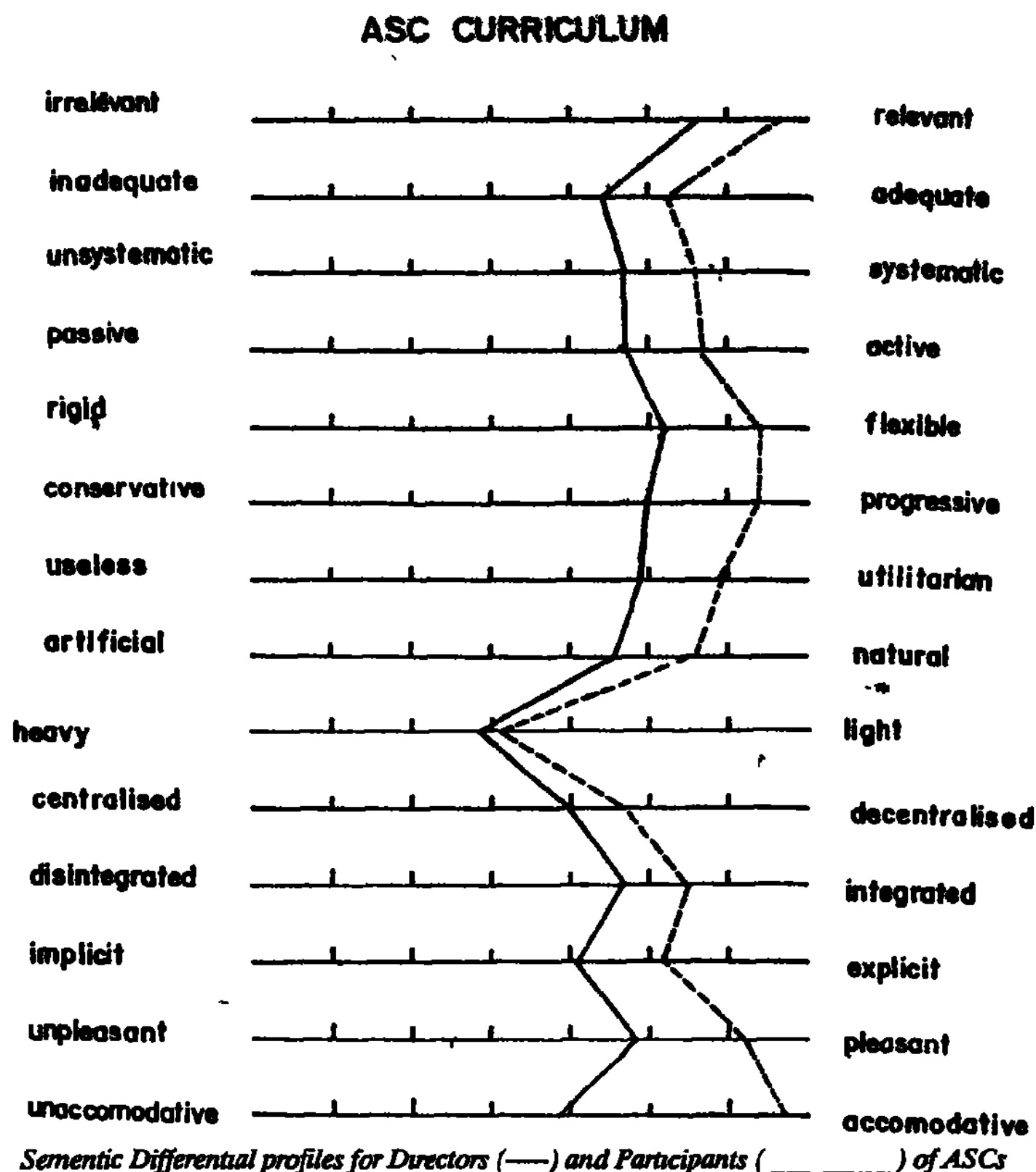
Note . 1 Figures in parenthesis are representing the weighted score of Directors and out of parenthesis are weighted score of participants.

2. * denote adjective sets are reversed

3. ** denote highest point at middle.

* NCERT, New Delhi.

To analyse the Semantic Differential results, a profile was obtained by finding the average rating given by Directors and participants separately for each of the 14 scales.



An inspection of the profiles would indicate that the Directors have considered ASC curriculum to be more favourable than the participants. But both the groups place the curriculum within acceptable limits on thirteen out of fourteen Semantic Differential scales. It may therefore be concluded that the curriculum is acceptable to a greater extent.

It may also be noted that Directors and participants both converge on the idea of its being heavy. It is therefore, suggested to reduce its load quantitatively. However, qualitative improvement is not ruled out.

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Sustainable Development

"If sustainable development has to be achieved, the quantity of materials consumed has to be reduced so that there is less strain on the resources; and other possible resources have to be explored to supplement earth's crust resources," said Dr. H.C. Visvesvaraya, Vice-Chancellor, University of Roorkee, while delivering the Convocation Address at the eleventh convocation of the School of Planning and Architecture, New Delhi. Excerpts

A 'Scientist' observes, discovers and formulates the laws of nature. A 'Technologist' works out the means of application of those laws and principles of Science. An 'Engineer', using the tools of Science & Technology as well as of a number of other fields, converts the resources available in nature into actual goods and services needed by the society. A Planner or an Architect plans, conceptualizes, gives form and life to ideas so as to meet the societal needs taking into account all the above aspects as well as the economic, social and even political parameters in meeting the needs of the society.

One of the major responsibilities of a Planner or an Architect is in creating suitable human settlements. For a long time, and in many fora, issues relating to Integrating Human Settlements Concerns into a Sustainable Regime have been debated. More recently, the UN General Assembly has incorporated it in its Proclamation in 1988 and UNCED – the Earth Summit in 1992 has incorporated it in its Agenda 21. There are some fundamental issues relating to these which a Planner or Architect has to be clear about in pursuing his or her professional work.

The World Commission on Environment and Development brought into common use the term "Sustainable Development" defining it as development towards "meeting the needs of the present generation

without compromising the needs of the future generations". Since then the term "Sustainable Development" has been widely used, sometimes misused, and perhaps even abused on occasions.

Whilst the ultimate goal of all development is expected to be improvement in the quality of life in society, the concept of 'sustainability' is not yet precisely understood. The task is to convert available resources into goods and services needed by society for improving its quality of life. Therefore, to say that all natural resources should be preserved as they are – undisturbed – is neither a practical proposition nor a wordly reality. Successful development would undoubtedly involve some disturbances in our environment and therefore, it is not appropriate to assume that sustainable development is synonymous with zero degradation. Sustainable development has to be understood as an endeavour to minimize the rate of degradation and to ensure that however small a degradation that does occur is made up in the best acceptable form and as fast as possible. Sometimes, it is argued that utilization of one resource can be compensated by another; for example, educational, scientific and technical advances add to the human resources and these human resources may more than compensate the losses of material or energy resources in some cases. Such philosophical arguments though true in a limited context cannot be accepted or ap-

plied without going into the details and without taking both a holistic as well as a microscopic view.

Therefore, whenever we conceive of a Human Settlement programme we have to ensure that it credits to sustainable development more than it debits and that is where your training and learning will become useful.

If we take into account the area of our country the resources and our population you will find 265 persons have today to share the resources available in one sq. km. of our earth's crust, as against just 2 persons per sq. km. in Australia, 13 in erstwhile USSR and 27 in USA. Even in China it is only 118. In view of this while taking fullest advantages of advances in science, technology, planning and architecture and experiences available elsewhere in the world, our solutions for India have to be relevant to our Indian parameters. In doing so we should also keep in view the need for developing our abilities so as to be able to import resources such as for example even though Japan has a per sq. km. population higher than India, it is able to mobilize enormous resources because its human resources have enabled them to import considerable quantities of oil, coal, iron ore and even granite.

In order, therefore, for us to put our learning in Planning and Architecture into proper use we have to simultaneously take into account certain guiding factors such as :

- (a) Environmental Protection and Ecological Balancing.
- (b) Materials Conservation and Performance Maximization.
- (c) Energy Conservation at all stages.
- (d) Safety Assurance – both health & hazard.
- (e) Speed Compatibility.
- (f) Durability, Serviceability and Cost Reduction covering

both immediate cost and life cycle cost.

- (g) Manpower Optimization.
- (h) Ergonomic & Aesthetic Satisfaction.

Convocation is not the occasion to go into technical details of these but in order that our young friends don't go away from here thinking these are all philosophical or abstract thoughts, I may cite just one or two specific examples.

For example, it is estimated that last year

- * to provide 68,000 million bricks 57,000 ha of fertile lands were degraded.
- * to secure 2.5 m³ timber, 450,000 ha of forest were damaged.
- * to win other minerals for steel, cement, etc. 30,000 ha of land were degraded.

As long as this rate of exploitation continues, there is bound to be serious ecological degradation. So, if sustainable development has to be achieved :

- * The quantity of materials consumed has to be reduced so that there is less strain on the resources, and
- * Other possible resources have to be explored to supplement earth's crust resources.

The increasing population and the increasing pressures for using the resources of nature no more permit the unrestrained freedom enjoyed by the earlier civilizations in utilizing resources from earth; on the other hand, the continuous advances in science and technology are enabling more to be done with less, the aids of which were not available to earlier generations in the same measure.

A majority of solid wastes have the same elements as the most abundant elements in the earth's crust and hence their exploitation in the

waste recycle technologies for making building materials is increasingly gaining ground. Today, over 2,600 Mt of solid wastes are produced a year -- about 500 Mt from agriculture, 300 from industries and 1,800 Mt from rural and urban activities.

Whether it is from the point of view of reducing ecological degradation or of energy conservation or from basic principles of engineering, there is a need to conserve materials.

Building materials are relatively heavy and are used in large quantities in construction. Today, building materials are used 4 to 7 t/year per capita; no other material except water is consumed by man in larger quantities. In view of this, transportation of building materials is a major strain on the national system. And so, it is imperative that building materials are, as far as possible, secured from local resources. Science and technology has to be applied to maximize the performance from a given quantum of material both by the type of processing chosen as well as by the way the processed material is used.

Unless the speed of construction is in consonance with that required and planned, the very objective of the construction may get defeated. In the case of shelters, at the time of independence in 1947, the total stock of shelters in India including Pucca, Semi Pucca and Kutcha categories was 58 million units. Today the stock is about 150 million units.

The Planning Commission has estimated that in 1992 the shortage is 23.3 million dwelling units and by the year 2001 an additional 63.8 million dwelling units, comprising 32.0 million in rural areas and 31.2 million in urban areas, are required to meet the incremental housing needs; this means another 87 million units have to be put up in about 8 years to meet the needs of housing without any shortage by the year 2001. This would require the shel-

tering activity to provide shelters to the tune of nearly 10 million units a year as against the present rate of only about 3 million units a year.

Out of the present stock of 150 million units, only 49 million are Pucca Units and the rest of 101 million units are of the Kutcha or Semi Pucca type with 58 million Semi Pucca Units and 43 million Kutcha units.

So the task of taking qualitatively the Kutcha category into Semi Pucca and the Semi Pucca to the Pucca category poses yet another challenge.

To achieve these two goals enormous resources have to be provided and innovative strategies have to be formulated and appropriate speed has to be adopted. The challenge, therefore, is to mobilize the needed resources on the one hand and increase the speed of construction on the other either by adopting "industrialized" housing construction or extensively "socialized" housing construction. The former would need sufficient quantities of appropriate materials and up-to-date machinery and the latter would require inputs to be provided in a very widely distributed but systematic manner. Or, a judicious combination of the two approaches may be adopted. Whatever the approach, it has to be in the regime of sustainable development.

There are areas other than mere human settlements, or shelters and town planning which also need your close attention. Various infrastructural constructions such as roads, bridges, dams, etc. could also greatly benefit from architectural inputs

Before concluding, the last and the most crucial issue I would like to mention is our ability to put all our learning and energies towards only socially relevant projects and not on those which are relevant to some other country or which are for recognition or support by societies elsewhere in the world or for just satisfaction of a few individuals.

Excerpts from the Address by Shri Arjun Singh, Union Minister for Human Resource Development

The School has managed to play a pioneering role in introducing specialisations in areas where none was available in the country. The School has thus produced a reservoir of indigenously trained personnel who now hold very responsible positions in India and abroad.

The architecture course conducted by the School has completed half a century and shall be expanding its activities further with the introduction of the Master's Degree Programme in Industrial Design from this year. The students from the first course in India at Bachelor's level in Planning will be graduating from this year.

I have noted with great satisfaction that the School has been focussing attention on emerging development issues of national importance particularly in the fields of environmental protection, energy conservation and rural development.

Recognising the specialised nature of the fields in which the school has attained eminence, the Ministry of Human Resource Development is now actively considering the proposal to accord the School the status of an 'Institution of National Importance'. I sincerely wish that this proposal will be materialised in the near future.

Concerned by the deteriorating aesthetic standard of our towns and cities and alarmed by the trends of massive urbanisation our late Prime Minister Shri Rajeev Gandhi had appointed a National Commission on Urbanisation which had submitted its report in 1988. It has suggested many innovative ideas about policy guidelines and implementa-

tion procedures for meeting the challenges posed by the rapid Urban Development. It is upto you who are in the forefront of planning and architecture education to pick-up the ideas therein and through research and feed-back help bring about constructive changes in the practice of these ideas related to conservation of architectural heritage, protection of environment, passive low energy architecture, rural development and housing for the poor.

The Housing Policy of the Government and the emerging relationship between the public and private sectors has shown the direction for entirely new strategies for

urban development. The role of public agencies is now being visualised more as a Catalyst rather than being merely involved in development activities. This is bound to bring about structural changes in the manner in which the physical development agencies are organised. I am sure, you have taken cognizance of these changes and are thinking about changes in your curricula to prepare your students to be able to not only cope with these changes after graduation but also bring about practical changes to carry the reform process further.

I would like to assure you that any endeavour on the part of the School to achieve further excellence in your academic and extra-moral activities will receive full encouragement from the Ministry of Human Resource Development.



POSTGRADUATE INSTITUTE OF MEDICAL EDUCATION & RESEARCH, CHANDIGARH

ADMISSION NOTICE NO 33/93 (ACAD)

Applications, on prescribed form are invited from unmarried female candidates for admission to B Sc Nursing (4 years) course of the College of Nursing attached to the Institute and affiliated to Panjab University for the session 1993-97 starting from 7th July, 1993

ADMISSION QUALIFICATIONS

10+2 examination passed of the Panjab University with Physics, Chemistry, Biology and English or any other examination recognised by the Panjab University as equivalent thereto. Candidates appearing in the said examination to hold in April-May, 1993 can also apply but they will be admitted to the entrance test only if they furnish the proof of their having passed the examination by 20.6.1993

AGE LIMITS

Not less than 17 years and not more than 25 years as on 30.6.1993

No. of SEATS: 50, General-39, Reserved for Sch. Castes/Tribes-11

STIPEND ADMISSIBLE

Selected candidates will be granted stipend at the rate of Rs. 100/- PM for three years and Rs. 200/- PM during the fourth year. They will have to execute service bond which, inter alia, provides that they will serve the Institute/Government for a period of three years after successful completion of the course. Marriage during the period of the course is not permissible. The breach of this condition will lead to the breach of the terms of the bond and will lead to the expulsion of the candidate from the course.

GENERAL INFORMATION

1. Candidates will have to appear in the entrance test at Chandigarh at their own expense.
2. Interim enquiries will not be entertained.
3. Those applying for the reserved seats must append with their applications, a certificate from the Dist. Magistrate/Tehsildar/Dist. Welfare Officer, concerned in support of their claim. No other certificate will be entertained.
4. The number of seats mentioned above is subject to variation without prior notice. Application form and "BROCHURE OF INFORMATION" are available from the office of the undersigned either personally on payment of Rs. 15/- at the counter from 10.30 AM to 11.30 AM on all working days and 2.30 PM to 3.30 PM on all working days (except Saturdays) or by post on written request accompanied with a self addressed envelope of 23 cms x 10 cms with postage stamps of Rs. 4.50 affixed thereon and a crossed postal order for Rs. 15/- drawn in favour of the Director of the Institute.

CLOSING DATE FOR THE RECEIPT OF APPLICATION IS MAY 31, 1993

National Institute for Training and Research in Higher Education

Prof. G. Ram Reddy, Chairman of the University Grants Commission, called for urgent measures to provide training for university administrators and non-teaching staff to ensure proper management of the centres of higher education. Addressing special foundation day convocation of Andhra University, Dr Reddy said the Dr Amrik Singh Committee, appointed by the Centre had recommended setting up of a National Institute for Training and Research in Higher Education.

The institute would work in cooperation with a network of institutions in different regions of the country to provide systematic training facilities for the 26 lakh faculty members and 5 lakh administrative staff of Indian universities, he said.

Prof Ram Reddy felt that much damage had been done to the university education in the country due to the neglect of training for teaching and non-teaching staff.

In this connection, he referred to the academic staff colleges set up in various universities with UGC aid to provide refresher and exchange programmes for faculty members

Saying a good beginning had been made, he called for a critical appraisal and improvement of the work of the staff colleges, both qualitatively and in the number of faculty men covered

Prof Reddy said the universities were not making good use of the autonomy policy of UGC

All high-calibre institutions and departments working under a university should get full autonomy to free them from the cumbersome bureaucratic procedures, he added.

The UGC chief said any institution of learning would progress only if it adopted itself to change. They must give up old notions regarding the nature of courses or the content of university life, and mould themselves according to the new needs and circumstances.

He recalled the services of great luminaries like Dr. Sarvepalli Radhakrishnan, Dr. C. R. Reddy and Dr. V. S. Krishna to Andhra University and quoted Sir C. V. Raman to say "the work of these leaders will never perish".

The Vice-Chancellor, Dr M. Gopalakrishna Reddy, said the university started the discipline of International Studies, and a research forum (revival of an earlier body which had been started by Dr. V. S. Krishna) on the occasion of the foundation day. The resource mobilisation cell, also started on the foundation day, was designed to serve as a link between the university and its alumni and the industry.

The Vice-Chancellor said Mr. Mullapudi Harischandra Prasad, industrialist, had promised a donation of Rs. 15 lakh and Mr P. V Ramanaiah Raja Rs. 50,000 for the university's corpus fund.

Referring to innovations in courses of study in the university, he said, it had introduced M. Tech. (Bio-technology) recently and was about

to start MA in Yoga and Consciousness, M. Sc. (Tech) in Mineral Exploration, B. Tech. (Bio-technology) and new courses in Molecular Biology, Genetic Engineering and Criminal Justice.

Dr. Gopalakrishna Reddy said a training, guidance and placement cell for all departments, and intra-university networking of computer services would be constituted soon.

Eleven renowned personalities, including Mother Teresa (in absentia), Justice O. Chinnappa Reddy, former judge of the Supreme Court, Dr. R. Chidambaram, chairman of the Atomic Energy Commission, and Mr. Khushwant Singh, journalist and author, were presented honorary doctorates at the special convocation, held to mark the foundation of the university 67 years ago

New Fee Structure for Engg Colleges in Karnataka

Mr. S.M. Yahya, Karnataka State Education Minister said in Bangalore that a three-man committee had been set up to monitor the facilities available in engineering colleges, following the new fee structure.

Mr. Yahya, who brushed aside doubts that private managements would not maintain their colleges following the new fee structure, said that in such cases, the Government would take appropriate steps.

Explaining the fee structure, Mr Yahya said the fees would be collected by the Directorate in a common pool before being disbursed to the respective colleges. Each college had been asked to inform the Government about the actual fee

fixed by them for each of the courses, the Minister said, adding that the fee had to be within the ceiling fixed by the Committee appointed for the purpose.

Mr. Yahya also said that the State Government had sought the legal opinion on whether minorities came under the "constitutionally permissible classes" for whom seats were reserved by the recent Supreme Court Judgement. In the eventuality that they did, minority institutions would then be allowed to reserve a certain percentage of seats for their community, he said. However, even for these seats, the selection would be made on the basis of merit and the results of the Common Entrance Test

Pointing out that the total number of free seats on merits had increased from 6461 last year to 10,823 in the forthcoming academic year, Mr Yahya said there would be 7,451 payment seats this year, taking the total amount of seats available in engineering colleges this year to 18,274. The free seats would be exclusively for Karnataka candidates while the rest were open to all, he added

The Common Entrance Test (CET) for Admission to professional courses in engineering, medical, dental, pharmacy and nursing colleges in the State will be conducted on June 16 and 17, 1993 as announced by the office of the Director of Technical Education

The Common Entrance Test is compulsory for all candidates seeking admission to all professional colleges both under free and payment seats.

New Plan for PG Medical Exams

The Supreme Court has modified the schedule made earlier by it for

the All India Post Graduate Entrance Examination for admission to 70 medical colleges and 40 specialities in medical field in the country.

The modified schedule has been directed to be implemented from the academic session beginning next year.

According to the modified schedule, formulated on the suggestion of the Director General of Health Services (DGHS), the All India Post Graduate Entrance Examination will be conducted on the second Sunday of January every year.

The candidates will not be required to give any choices at the time submission of application forms. The results would be announced by the third week of February every year and the merit list would consist of the number of the candidates equal to the number of seats available for allotment.

A waiting list containing not more than ten percent of the merit list would also be declared from among successful candidates who secure more than 50 percent marks in the competitive examinations.

The allotment by personal appearance would start from March 1 every year and would continue upto March 15.

In the bulletin of information, the dates for allotment by personal appearance and the venue in Delhi would be notified

The time schedule for personal appearance would also be notified along with the results in newspapers. For personal appearance, the candidates would be called in the batches of 150 each day in order of merit.

The candidates would have the right to choose any one of the available seats at his/her rank allotted to the candidates and the allotment letter would be issued the next day.

In case a candidate is unable to appear in person on a notified date, he or she can send a representative with an authority letter for allotment.

The allotment made to the authorised representative shall be binding on the candidate

Each candidate would be given 15 days time to join the allotted college and course. The last date of joining would be March 31 every year.

Refresher Course in Sanskrit

The fourth refresher course in Sanskrit was recently organised by the Department of Sanskrit and Academic Staff College of Jai Narain Vyas University, Jodhpur. The course, which was attended by forty-four participants from six different states of India, had Sanskrit literature and Grammar as its thrust areas. A few important lectures on the Vedas and Indian Philosophy were also included.

Inaugurating the Course Dr. Radha Vallabh Tripathi, Prof & Head Department of Sanskrit, University of Sagar, said that teachers of Sanskrit could fill up the intellectual vacuum created by the departure of Britishers from India. Dr. Dayanand Bhargava, Professor of Sanskrit, Jai Narain Vyas University, Jodhpur, highlighted the importance of Sanskrit for proper understanding of social sciences and putting physical sciences in their proper perspective.

Professor Ramji Singh, Vice-Chancellor of Jain Vishva Bharti Institute, Ladnun, in his valedictory address, emphasised that as against the common belief, Sanskrit literature was not artificial, but spontaneous. Dr. R.K. Sharma, former Vice-Chancellor, Sampurnanand Sanskrit University, Varanasi ex-

plained how Sanskrit Grammarians standardized the language assuring it a long-life

Dr Fateh Singh, Director, Veda Sansthan, Delhi explained the symbolical significance of a few key vedic words Prof C K. Goswami, Head of Sanskrit Department, Banasthali Vidyapeeth, brought out the beauty of the use of appropriate words by Kalidasa. He delivered a special lecture on the contribution of woman writers to Sanskrit literature

Prof Dayanand Bhargava of Jai Narain Vyas University, spoke on linguistic problem of the Vedic and classical Sanskrit and exhibited how Sanskrit language could be taught by a special game of cards devised by him

Prof Hari Ram Acharya of University of Rajasthan, spoke on the contribution of the prakriti authors towards the development of Sanskrit literature.

Prof V.K. Arora, Director, Academic Staff College, Jodhpur delivered two special lectures on the art of thinking which were highly appreciated by the participants. Emphasis was laid on dialogue between the traditional scholars of Sanskrit, on one hand, and the modern University Professors, on the other.

In the feedback, participants expressed their realisation that Sanskrit could be improved to a great extent by such innovative refresher courses where lectures were planned in a rational way with the view of transmitting maximum knowledge in the shortest period. They also realised that the students should be made self-dependent and spoon-feeding must be stopped; and with newer methods of teaching, learning Sanskrit would not only become easier but also interesting.

Appeal to Free Campuses from Student Politics

Dr. G. Ram Reddy, Chairman of the University Grants Commission (UGC) appealed to political parties to free campuses from student politics and refrain themselves from "playing with the future of young people" He was participating in a function at the Cochin University of Science and Technology (CUSAT). He said that campus politics was disrupting the basic academic functions of Universities – the teaching and learning process, holding of examinations on time, announcement of results on time and admitting students for various courses on time.

Dr. Reddy said the universities in the country now faced the challenge of tapping various sources for funds since the State alone may not be capable of meeting all their requirements. No longer should they rely exclusively on the Government for resources, he said, citing the policy changes that provided for tax exemption to industry for contributions to higher education and research

In his address, the Education Minister, Mr E T. Mohammed Basheer, said that the State Government's decision to permit self-financing colleges was all right as long as it did not lead to corruption or compromise on the quality of education.

He also referred to the need to change the fee structure 'to a certain extent' for improving the quality of education and to diversify technical education in keeping with the needs of our time. Universities should mobilise funds on their own as much as possible to attain financial stability, he added

Dr A. N. Maheswari, CUSAT Vice-Chancellor, who presided, urged the State Government to increase the non-plan allocation for the University for 1993-94, which was inadequate to meet the institution's

liabilities including salaries and additional DA granted to its employees with retrospective effect. Resources could not be mobilised 'overnight' from external sources, he said.

New Part-time Courses at Calicut Varsity

The Calicut University proposes to introduce part-time courses in Business Administration (MBA) and Computer Application (MCA) from this year. This was decided at the meeting of the University Syndicate held recently. The Syndicate had cleared commencement of a part-time Diploma course in Computer Application (DCA). Approval had been granted for a full-time post-graduate course in M.Sc Biotechnology

The MBA course would be held at the University City centre coming up in Kozhikode and at the University John Mathai centre in Thrissur. The MCA and DCA courses would be held at the university campus in Tenhipalam. The meeting presided over by the Vice-Chancellor, Dr A N P Ummerkutty, also decided to start diploma courses in functional English at the University centre at Palayad in Thalasserry, functional Arabic at the BED centre at Malappuram and in Library Science at the city centre and at the varsity campus. These would be evening courses

Productivity Improvement in University Administration

The Centre for Work Study in Educational Administration, Panjab University, proposes to organise a programme on "Innovative Approaches to Productivity Improvement in University Administration" for Registrars, Controllers of Examinations, Finance Officers and other officers of the rank of Deputy Registrar from June 23-29, 1993. The objectives of the programme include identifying highly complex

problems in University/educational administration, highlighting the spirit of scientific inquiry for optimal use of available resources and developing expertise in productivity techniques in educational administration. The programme methodology include case discussion, presentation of papers by the participating officers and possibly films on the relevant topics and techniques of educational administration. The faculty consists of eminent academics and administrators of high repute

Further information may be obtained from Shri Shital Parkash, Hony. Director, Centre for Work Study in Educational Administration, Panjab University, Chandigarh

Haryana to Boost Technical Education

The Haryana Chief Minister Mr Bhajan Lal announced recently in Chandigarh that Rs 500 crore would be spent on the expansion of technical education during the next three years

Speaking at the prize distribution function of Behan Krishnamoorti Vishvas School, Panchkula, he said no school would be upgraded and the funds would be diverted to boost technical education in the State so that more and more opportunities could be created for self-employment of the youth.

He said that to inculcate higher values of life among students, the State government had introduced moral education in the school syllabi

The Chief Minister said that the State Government was laying great emphasis on the girls education and they were being imparted free education up to graduation level. Books, uniforms and other stationery items were also being provided free of cost to the girls belonging to weaker sections of society.

Sports News

Abul Kalam Azad Trophy 1991-92

Guru Nanak Dev University, Amritsar, has won the prestigious Maulana Abul Kalam Azad Trophy for the year 1991-92. Hon'ble Dr. Shankar Dayal Sharma, President of India, presented the Trophy to Prof G. S. Randhawa, Vice-Chancellor, Guru Nanak Dev University at a special function held at Rashtrapati Bhawan in New Delhi. It carries a cash award of Rs 50,000/- to be utilised by the winning University for procurement of Sports equipment from the Sports Authority of India. Delhi University

and Kerala University are also eligible for the cash award of 25,000/- and Rs 10,000/- respectively, for winning 2nd and 3rd positions.

This Trophy establishing the over all supremacy of Sports at the University level, was introduced in the year 1956-57 as an incentive to universities to excel in sports. It is the 10th occasion for Guru Nanak Dev University to win this Trophy. Prior to that, the Trophy was won by Delhi University for four consecutive years

News from Agricultural Universities

Socio-economic Status of Rural Women

"Although women have made significant contributions in all walks of life yet they have suffered utter neglect and deprivation over the centuries. Today's age is the age of information and science and technology so it is imperative on the part of experts of the Home Science that indepth studies on the socio-economic status of rural women be taken up at the moment", observed Dr. Girja Vyas, Member of Parliament and former Union Minister while speaking as chief guest at the Annual Prize Distribution Function of the College of Home Sciences of Chaudhary Charan Singh Haryana Agricultural University.

Dr. Vyas said that men and women were two indispensable wheels of our society. The development of a society, community or a nation in any field, be it social, economic, political, spiritual and educational depended upon the degree of human resource development of both men and women. She said that as we

were poised to enter the twentyfirst century with women in India numbering approximately 350 millions, it was time to take stock of our efforts for women in the country. The challenges of development and change in women's status had to be met in the coming years, in an integrated and planned manner. Congratulating the award winners, Dr. Vyas urged them to devote themselves to the welfare of rural poor. On this occasion, Dr Vyas gave away prizes to the students for excelling in academic, cultural and extra curricular activities.

Dr Amrit Lal Chaudhry, Vice-Chancellor, who presided, observed that home was an index of a country's progress reflecting the lives of individuals in general and women in particular. In order to ameliorate the status of women and make them partners in main stream of development, it was necessary to design and implement in special educational programmes at various levels.

In his report, Dr. B.M. Chauhan, Dean of the College, disclosed that the college with its five well established departments viz. Child Development, Clothing and Textile, Food and Nutrition, Animal Resource Management and Home Sciences Extension Education was making steady progress in enabling the rural

women in adopting the time, labour and money saving technologies. He said that for the harmonious development of the students personality and also to enable them to face the challenges of the modern time, the course catalogue had been revised in accordance with the U.G.C. and I.C.A.R. guidelines.

News from UGC

Countrywide Classroom Programme

Between 24th May to 31st May, 1993 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 1.00 p.m. to 2.00 p.m. and 4.00 p.m. to 5.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission

1.00 p.m. to 2.00 p.m.

24.5.93

"Polarization of Light"

"General Agreement on Trade and Tariff - I"

"Oil Seeds - I"

25.5.93

"Wormact"

"Malaria Vaccine
A Perspective"

"Contract Act - IV"

26.5.93

"Monsoon Plants - I"

"Water-Treatment at
Point of Use"

"Ferrocement"

27.5.93

"Data Structure - II. Lists"

"A Game of Chess"

"Dikara - The Traditional
Folk Art of Kumaon"

28.5.93

"Basics of Library Science"

"Starfinder - IV.
The Expanding Universe"

"Colours of Mind"

29.5.93

"Aesthetics of Film
Adaptations - II"

"Colours"

"The Week Ahead"

30.5.93

No Telecast

31.5.93

"Stress Management and Indian
Ethos"

"General Agreement on Trade
and Tariff - II"

"Oil Seeds - II"

IInd Transmission

4.00 p.m. 5.00 p.m.

24.5.93

"Potential Field as a
Description of Force Field"

"Management Function
and Behaviour :
Personnel Functions"

"Managing Rural Business - I"

25.5.93

No Telecast

26.5.93

"Child . Growth and
Development - III"

"Ways of Thinking - III
World of Waves"

"Vit A - The Eye Factor"

27.5.93

"Understanding Transistor
Radio Receiver - II"

"Glimpses of Girasia Life - II"

"19th Century Russian Literature
Nikolai Alexevich Nekrasov"

28.5.93

"Aesthetics of Film
Adaptation - I"

"The Dying Dal Lake"

"The Week Ahead"

29.5.93

No Telecast

30.5.93

No Telecast

31.5.93

"Listening to Molecules -
Photoacoustic Readings"

"Management Functions and
Behaviour, Selection for
Employment"

"The Laser"

International Conference on Distance Education

The Surrey University Centre for Commonwealth and European Education and Development (SUCCEED) will be holding a 3-day international conference on distance education on 14-16 July 1993.

The objectives of the conference are :

- Promoting co-operation between Europe and the Commonwealth in distance education;
- Identifying sources and forms of assistance to promote such co-operation and how this may be accessed,
- Analysing aims and appropriate strategies for those involved in distance education in Europe and the Commonwealth; and
- Formulating a joint action plan to progress agreed objectives

The conference is for policy-makers and practitioners at all levels of formal and non-formal distance education

The principal discussion themes will be :

- The development of institutional capacity for distance education;
- The development and sharing of teaching-learning materials for distance education;
- The identification and utilisation of appropriate technology for distance education;

- The provision of appropriate forms of staff development for distance education, and
- The development of appropriate

ate structures for international co-operation in distance education.

Further information may be had from Mrs Averil Heaton, SUCCEED, Department of Educational Studies, University of Surrey, Guildford, Surrey, GU2 5XH, United Kingdom

Smt. Parvatibai Chowgule Cultural Foundation's College of Arts and Science

MARGAO, GOA-403 601

Applications with full bio-data are invited for the following posts so as to reach the Principal within 15 days from the date of publication of this advertisement. Candidates applying for lecturer's posts must have passed the eligibility test for lecturership conducted by the U G C. However, if such candidates are not available, other candidates will be considered for appointment on purely temporary basis. Applications must be accompanied by certified copies of mark sheets of all the examinations from S.S.C. onwards. The candidates must have consistently good academic record

Lecturers in Computer Science
(reserved for SC/ST, First Advertisement)

3 posts

Minimum Qualifications

(a) First class B.E./B.Tech in Computer Science or Electronics having consistently good academic record with two years experience

OR

(b) M.E./M Tech in Computer Science or Electronics with 55% marks and good academic record

OR

(c) M.C.A. OR M Stat OR M Sc in Computer Science OR Electronics OR Maths OR Statistics with 55% marks and good academic record

Scale of Pay and terms and conditions of service are those laid down by the Goa University, Directorate of Education, Panaji, and other competent authorities.

Applicants who are already employed, shall forward their applications through proper channel and shall account for breaks, if any, in their academic career

If suitable SC/ST candidates are not available, candidates from open category will be considered for appointment for one academic year on temporary basis.

V.R. Shirsurkar
PRINCIPAL

A list of doctoral theses accepted by Indian Universities

HUMANITIES

Philosophy

1. Gian Chand. A study of the Dravyasamgraha in relation to early Buddhist philosophical texts. Delhi.
2. Nanesurwan, Pramana Theerapantha. A comparative study of Dhammapada and Thirukkural. Madras.

Fine Arts

Music

1. Chattopadhyaya, Kalyan Kumar. An investigation into the inward psycho-temporal and psychological attributes of instrumental musicians. Rabindra Bharati.

2. Subhashini, P. Padams and Javalis of Carnatic music. Bangalore. Dr Padma Murthy, Prof, Department of Dance, Drama and Music, Bangalore University, Bangalore.

Drawing & Painting

1. Kulkarni, Bharvarlal. Ujjain ke bhittichitra sampada ka adhyayan. Vikram. Dr Ramchandra Bhavsar, 110 Mangal Colony, Udyan Marg, Ujjain.

Language & Literature

English

1. Abdulrehman, Ismail Husen. A critical study of war-fiction by two major American novelists: Stephen Crane and Ernest Hemingway. Baroda.
2. Gangadharan Nair, N. Art and commitment in the plays of Lillian Hellman. Ravishankar. Dr R J Chandani, Prof, Department of English, Govt Arts and Science College, Durg.
3. Ghosh, Arun Kumar. The concept of sin in the works of Graham Greene: A critical study. NBU.
4. Maity, Mousumi. J M Synge: The pagan view of life. Rabindra Bharati.
5. Muhammed A Mukheef Al-Da'Mi. Arabian mirrors and Western soothsayers: Nineteenth century literary approaches to Arab-Islamic history with specific reference to Carlyle, Newman and Irving. CIEPL. Prof S V Pradhan, Department of English Literature, Central Institute of English and Foreign Languages, Hyderabad and Dr I C Mahanti, Reader, Department of English Literature, Central Institute of English and Foreign Languages, Hyderabad.
6. Subbiah, D. A psychological study of childhood motif in the novels of Joyce Cary. Madras.

Sanskrit

1. Gupta, Manjula. Brahmana grantho me nari. Delhi.
2. Jain, Shastri Harishchandra. Shri Vaidyanath Surikriti Kshetra Chudamani ka sameekshatmak adhyayan. H S Gour. Dr Bhagchand Jain, Govt Postgraduate College, Damoh.

3. Misra, Sakanta. Vaidic sahitya: Sahitya sameeksha. Rabindra Bharati.

4. Panda, Sri Sasadhar. Bhavabhuti natyakala. Rabindra Bharati.

5. Shyama Devi. Sanskrit me lak Chameli bhusha: Ek adhyayan. HP.

6. Vora, Sonal Devendra. Pandit Raja Jagannath: Personality and literature. Saurashtra. Dr R P Mehta, Lecturer, Govt Arts College, Gandhinagar. Pali.

1. Naik, Sushila Tulshiram. Bhartiya Buddha shailikshnik sanstha: Tulnatmak adhyayan. Nagpur. Dr Bhau Lokhande, Reader, Department of Pali and Prakrit, Nagpur University, Nagpur. Hindi.

1. Bhatt, Rajendrakumar Babulal. Hindi ke swatantrayottar grambhittiya upanyas me n jeevan ke samasyayen. Baroda.

2. David, Rajan. Jaishankar Prasad ke natak me n itihastik patra: Manlik udbhavanayen. Gandhi. Dr T P Vijayan Namboothiri, Prof, Department of Hindi, C M S College, Kottayam.

3. Ibemhai Devi, Laurenlakpam. Brajaboli geeti kavya ke pariprekshya me n Manipuri geeti kavya ka anusheelan. Manipur. Dr L Jha, Department of Hindi, Manipur University, Imphal.

4. Jain, Reena. Nai kavita me n samanya jan ka chitra. H S Gour. Dr B S Dwivedi, Bazar Bard, Devar.

5. Jain, Sunita. Mannu Bhandari ka sahitya. Parivarik sambandhon ke vighan ke sthitiyan. Vikram. Dr Jaikumar Jalaj. Principal, Govt Arts and Science College, Ratlam.

6. Krishna, V. Swatantrayottar kavita ka valcharik sangharsh. Hindi, Telugu kavita ka adhyayan. Osmania.

7. Malviya, Pushpa. Hindi ke janvadi kavyadhara: Vdbhav aur vikas. Devi Ahilya. Dr P D Sharma, 83, Janknagar, Indore and Dr Ramesh Som, Department of Hindi, Indore Christian College, Indore.

8. Mishra, Vandana. Lok natya shailiyon ke sandarbh me n Muni Madhukar ke natak me n anusheelan. H S Gour. Dr B D Shukla, Lavkush Apartment, Idgal Hills, Bhopal.

9. Rai, Sarita. Soddeshyata ke sandarbh me n Prem Chand ke upanyas. HP.

10. Sharma, Parag. Tulsi sahitya ka saundarya shastriya drishhti se adhyayan. Devi Ahilya. Dr H C Verma, Prof, Department of Hindi, Maharshi Deyanand University, Rohtak.

11. Sharma, Surya Prakash. Kamleshwar: Vyaktitva evam krititva. Nagpur. Dr Durga Shankar Mishra, Abhyankar Putla, Mahal, Nagpur.

12. Shrivastava, R.N. Kancherla Manasa sura upalabha samaj samudaya ke bhagya chetana adhyayan. H S Gour. Dr M P Chaturvedi, Naya Bazar, No.3, Near Bara Pul, Damoh.

13. Vidya. Haryanvi krihi evam pashupalan sambandhi lokatiya ke vishleshtmak adhyayan. HP

Dogri

1 Shashi Kanta. Dogriverb. Jammu Dr Veena Gupta, Reader, Department of Dogri, University of Jammu, Jammu

Urdu

1 Akhtar, Md Yusuf. Town in Urdu novels. Calcutta

2. Rahman, Waheeda Narrative techniques in post-Independence Urdu novel. Delhi

3 Rohana Tabassum Urdu mein khawateen ke nasri adbi khidmat: Tahqiqi-o-tanqidi mutalla. Amravati. Dr Mohammad Sadullah, S K K College, Jalgaon, Buldana

Bengali

1 Bandyopadhyaya, Nema: Kumar Samares Basur kathasahitye samajchetana: Pratham paryay, 1965 paryanta. Rabindra Bharati

2 Chattopadhyay, Arup Kumar Bangla kavye nomanik chetana. Prachin yug theke unabinsha satabdi paryanta. Calcutta.

3 Das Gupta, Suchsmata. Andrews, Pearson O Kilmhirst Rabindra-jivane ei tinjan videshi Bharatbandhur sangs o samidhyer prabhab. Rabindra Bharati.

Marathi

1 Kalabhut, Purushottam Marotrao Vardha Jilhatel lok-sahitya: Ek abhyas. Nagpur Prof M S Vabgaonkar, Department of Marathi, Nagpur University, Nagpur

Gujarati

1 Makadia, Hansaben N Ravi Saheb. A critical study. Saurashtra. Dr P R Teraya

Nepali

1 Upadhyaya, Bhimkanta. Nepali Lahari sahitya ko parichaya ra bislesnatmak malyankan. NBU

Arabic

1 Hatahet, Tharwat A critical study of Syrian novels after the second world war Delhi

Tamil

1 Burri, Jaya Stream of consciousness in contemporary Tamil fiction. Delhi

Kannada

1 Visaji, G B. Shoonya sampadanegalu-ondur tonanika adhyayana. Gulbarga. Dr Basawaraj Malshetty, Vijayanagar College, Hospet

Telugu

1 Ramalinga Swamy, Meegada Tirupati Venkata kavula Pandava nataka chakram-pariseelanam. Andhra

2 Sarma, P U B. Tirupati Venkata kavula Bharatha nataharanu: Samagra pariseelanam. Bangalore. Dr G S Mohan, Lecturer, Department of Telugu, Bangalore University, Bangalore.

3 Sodha, S. Bhagavatamu le Krishna tattvam. Osmania.

Geography

1. Baskota, Lava Prasad Impact of Loktak Multipurpose Hydroelectric Project on the villages of Bishnupur District in Manipur. NBU

2. Verma, Toplal Purvottar Bastar ke janjatiyon ke krihi evam swasthya sambandhi samasyayen: Ek bhogolik vishleshan. Ravishankar Dr H S Gupta, Prof, School of Studies in Geography, Pt Ravishankar Shukla University, Raipur.

History

1 Baghel, Vijay Kumar Bastar ke Narayanpur Tehsil ke Mariya Janjati ke samajik sanakritik itihaz. Ravishankar Dr Ram Kumar Behar, Prof, Department of History, Govt Postgraduate College, Jabalpur

2. Chattopadhyay, Annapurna. Bengali people and culture: A study in origins. Calcutta

3 Jain, Aruna M. Madhya Pradesh vyavasthapika mein mehilayon ke samasyayen ke prati chetna, 1921-1936. H S Gour Dr M D Mishra, Department of History, Govt Degree College, Bina.

4 Malik, Anu. Military strategy and diplomatic institutions in Ancient India. Calcutta.

5 Mishra, Reeta British yugen Bilaspur Jile ke bhu-rajarya vyavastha, san 1861-1947 kevl. Ravishankar Dr (Smt) Shanta Shukla, Lecturer, School of Studies in History, Pt Ravishankar Shukla University, Raipur

6. Nayak, Pradip Kumar A study of the role of some leading personalities of North Orissa in the 2nd half of the 19th century Berhampur Dr J K Samal, Prof, Department of History, Berhampur University, Berhampur

7 Patel, Shantilal Manilal The Rathor Dynasty rule in Idar: A study of nobility, A D 1791-1905. Baroda

8 Ray, Prasanta Kumar Archaeological remains of Prachi Valley. Berhampur Dr B C Ray, Prof (Retd), Department of History, 90 Budheswari, Bhubaneswar

9 Shyam, Annapoorna social and economic history of Gujarat in the sixteenth century: A study based chiefly on the Portuguese sources. Baroda.

10 Singh, Ramsharan Maurya kaleen sainya vyavastha: Kautilya evam Megasthenize ke vivaran ke adhar per. H S Gour Dr M S Mishra, Department of History, Govt Degree College, Bina

11 Sircar, Sekhar Land settlement and revenue administration and taxation under the Maharajas of Cooch Behar State, 1773-1949. NBU

Australia International Students Branch. *Country studies on student mobility: Australia*. London Commonwealth Secretariat, 1991 51p.

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Job Requirements . The incumbent will be required to carry out independent and coordinated research on vector biology and its control in the field of malaria, Japanese encephalitis and other vector borne disorders and to participate in teaching and training programmes of the Centre. The candidate will be responsible for carrying out field studies on integrated vector control using bioicides and larvivorous fishes.

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Job Requirement . The incumbent will be required to carry out research on sero-diagnosis of viral diseases, especially in the field of Japanese encephalitis; to carry out community surveys and hospital studies on the role of viruses on human health is a major requirement.

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Job Requirements The incumbent will have to carry out research work in the immunological and diagnostic areas of diseases like malaria, filariasis and HIV/AIDS. The candidate is expected to organize community based surveys for viral disorders like JE and HIV infection. The candidate is also expected to classify cancers like NPC as per existing classifications.

iv) For Post No. IV - Qualifications & Experience Essential 1st class M.Sc. in Biochemistry/Foods & Nutrition with 6 years research/teaching experience in the field of community nutritional problems like PEM, anaemia, goitre and ability to organize community surveys. Ability to carry out laboratory work related to nutritional biochemistry (for candidates possessing Ph.D. in Biochemistry/Food & Nutrition 2 years research/teaching experience in the above fields is required)

Job Requirements The incumbent will be required to carry out research programmes on nutritional problems like PEM vitamin A deficiency, goitre and anaemia, particularly among the rural and tribal populations. The candidate will also be responsible to plan and supervise the field work on community nutritional status assessment and also should be able to develop suitable control strategies.

v) For Post No. V - Qualifications & Experience : Essential 1st class M.Sc. in Statistics with 6 years research/teaching experience in biostatistics, preferably in the processing of data generated in health and nutritional status of communities; practical experience in carrying out community surveys and hospital based studies on health and nutritional problems (for candidates possessing Ph.D. in Statistics 2 years research/teaching experience in the above fields is required)

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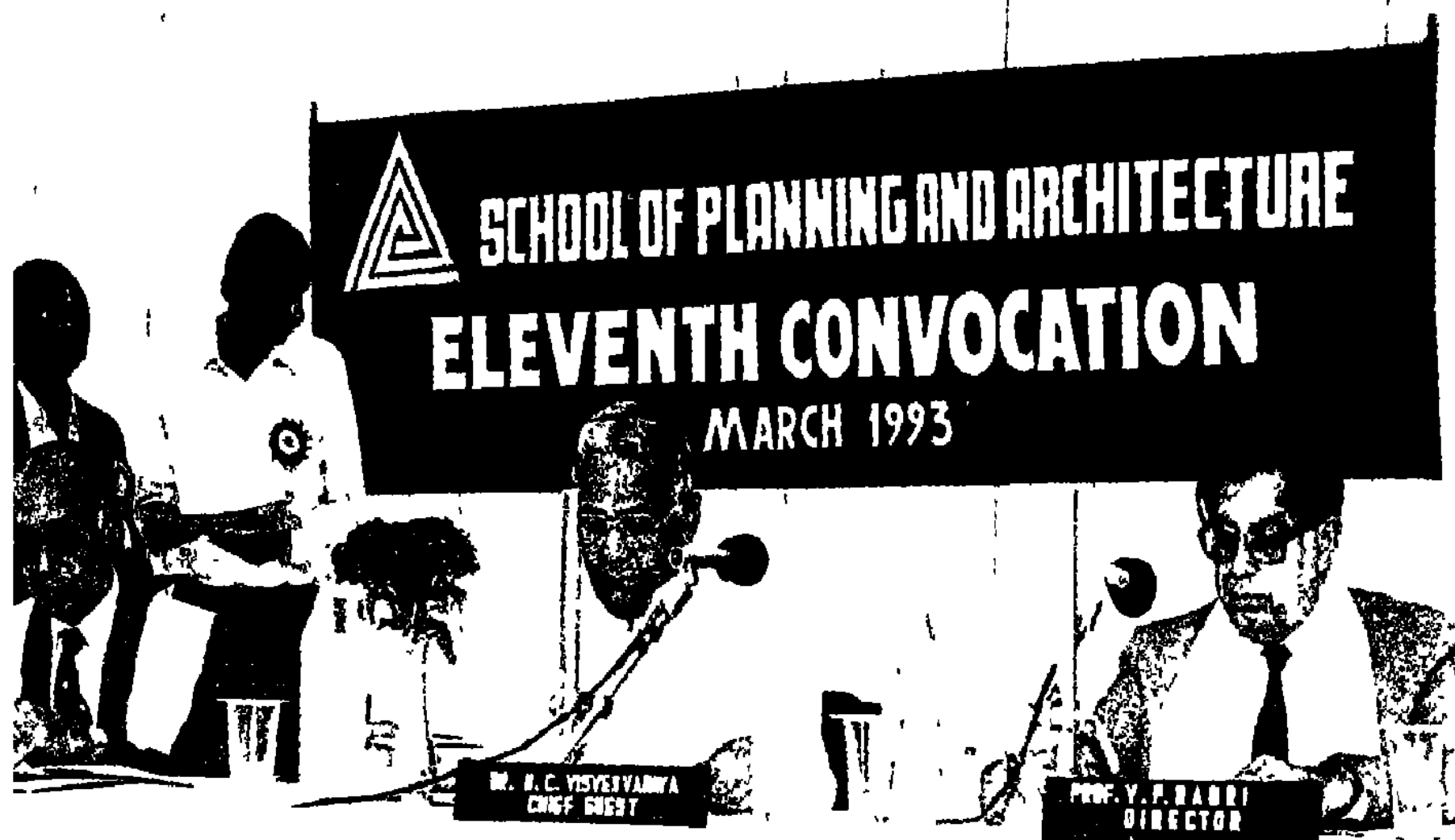
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